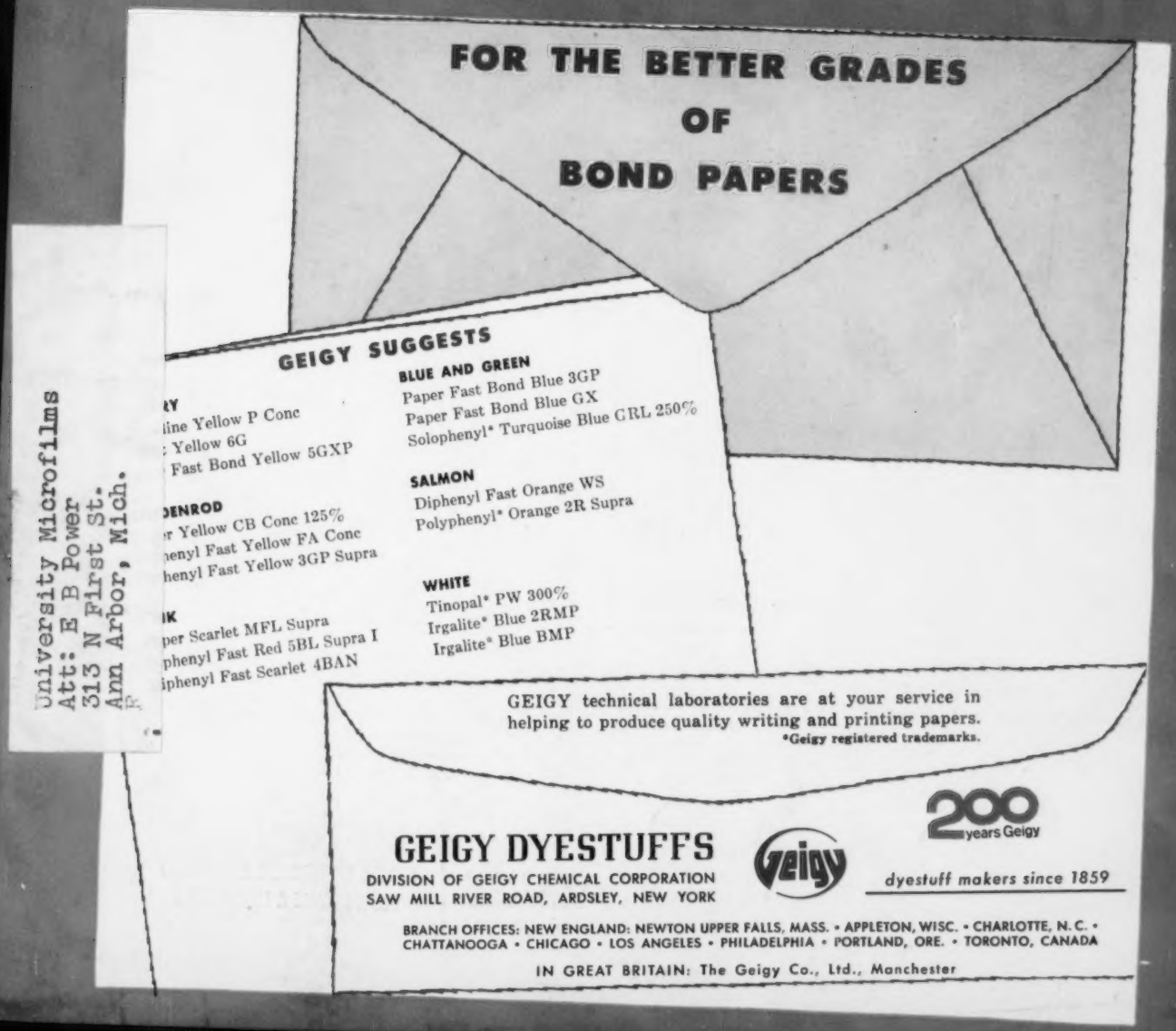
February 3, 1958

Paper Trade Journal

- Community Relations and the Paper Industry
- Three Commercial Processes Available for NSSC Recovery
- Latest on Gaylord's Digester System—A Field Report
- Groundwood Screening Systems —Theoretical Considerations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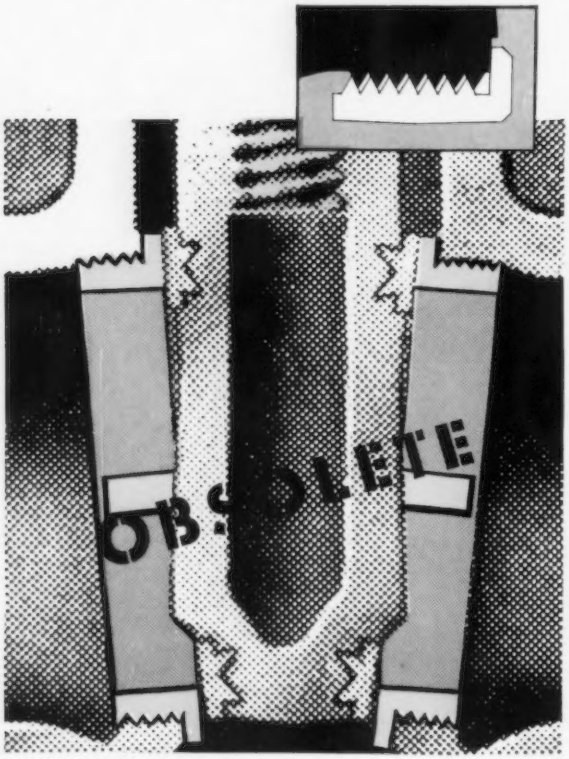
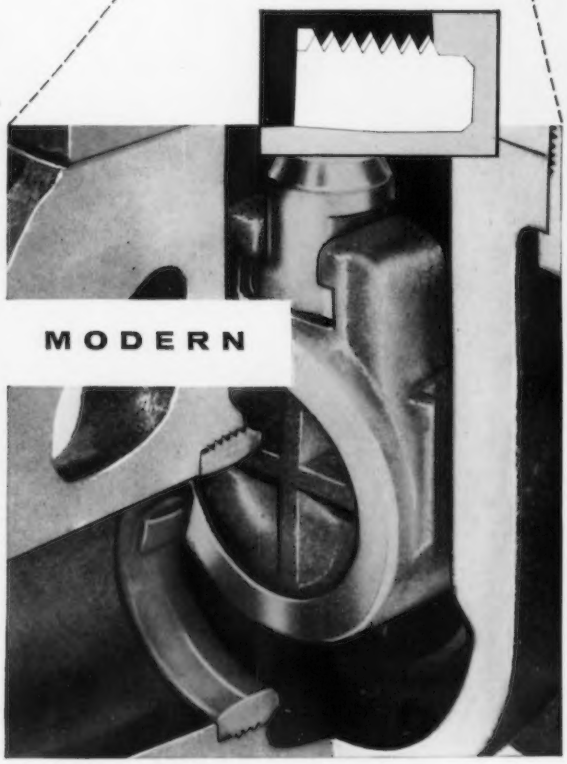


Shoulder-seated rings
Screwed stem-wedge connection

Ring design causes turbulence. Open back of ring is easily eroded. Ring is seated in tension. Continuous operation compresses and tends to loosen it, developing serious leaks.

A screwed stem-wedge connection is rigid. Closing valve under pressure tends to bind wedge, make closing difficult and perhaps bend the stem.



OIC end-seated rings
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Streamlined flow-through. No pockets open to attack by erosion. Ring is seated in compression. Stays tight even in continuous operation.

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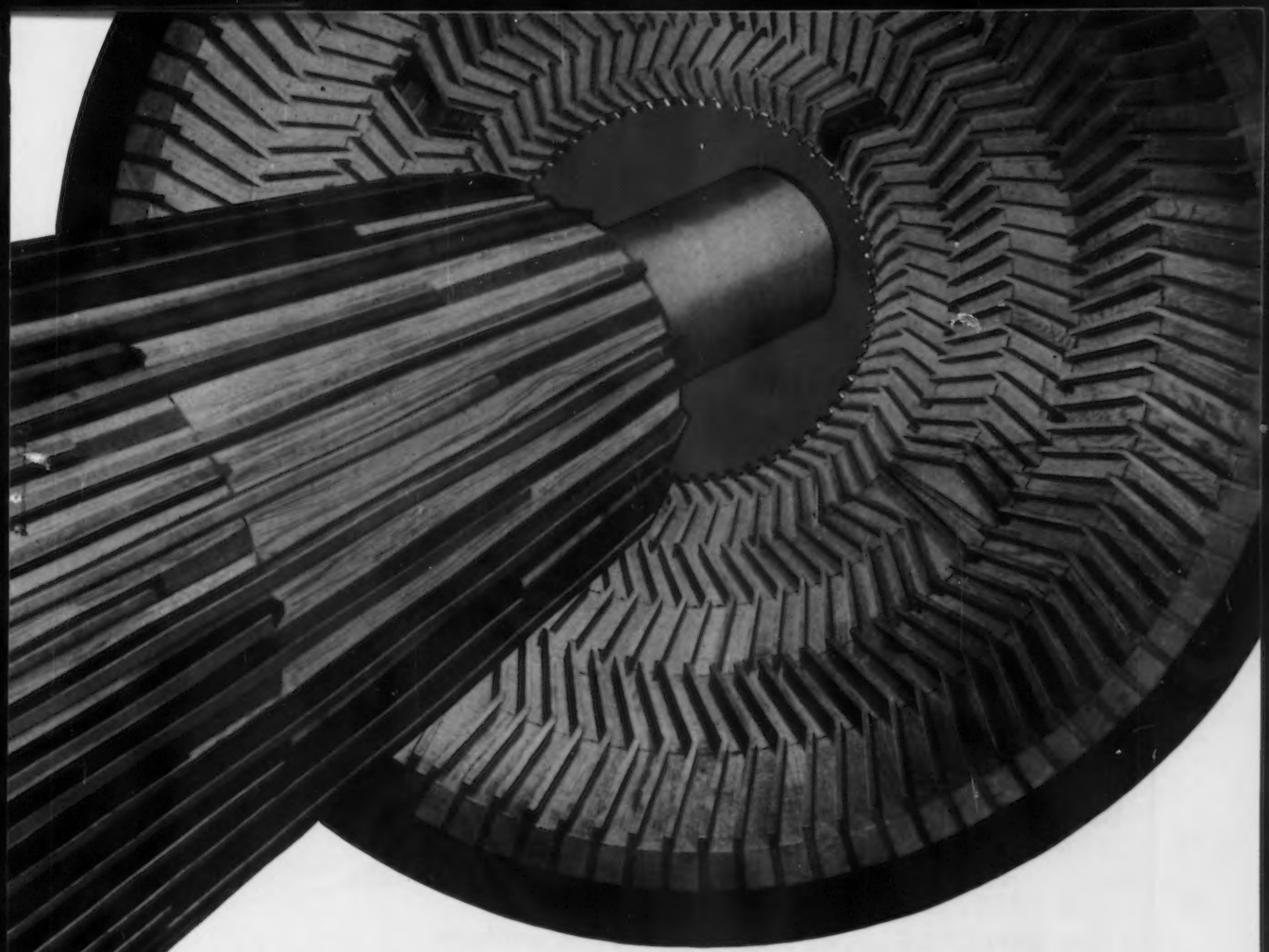

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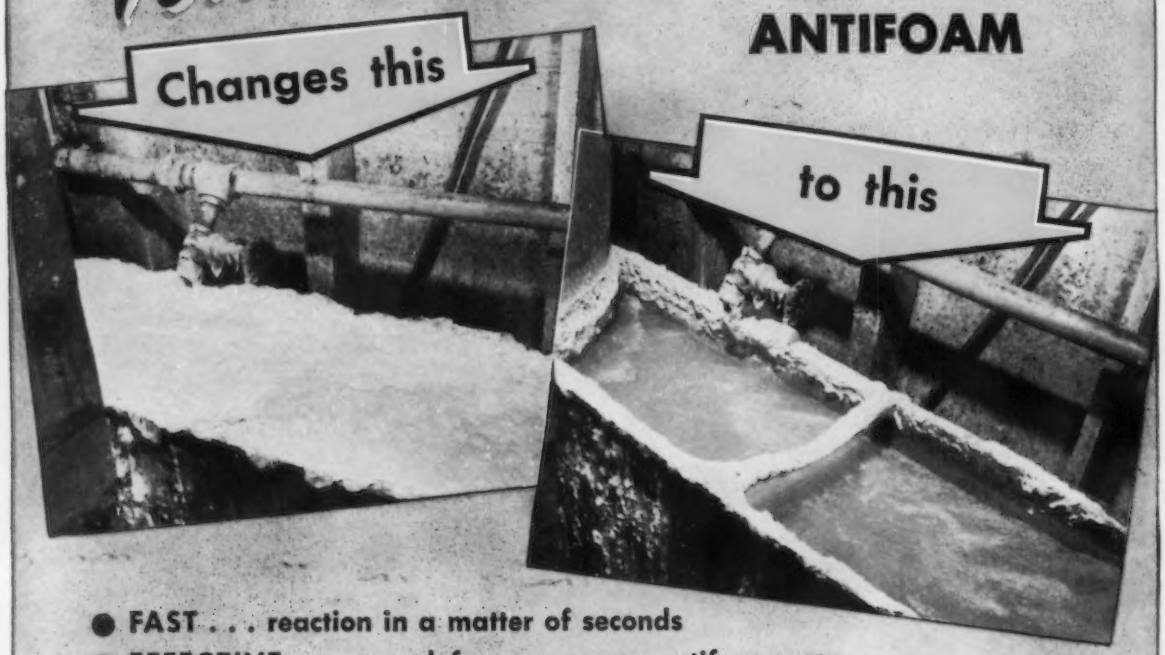

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REMEMBER THESE DATES . . .

Feb. 16-21: Paper Week in New York.

May 14-16: TAPPI Coating Conference, Bedford Springs Hotel, Bedford Springs, Pa.

June 2-4: Technical Section, CPPA, Summer Meeting, Chateau Frontenac, Quebec City.

June 3-5: Superintendents' Assn. Annual Meetings, Statler Hotel, Boston, Mass.

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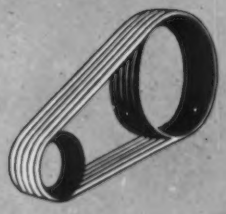
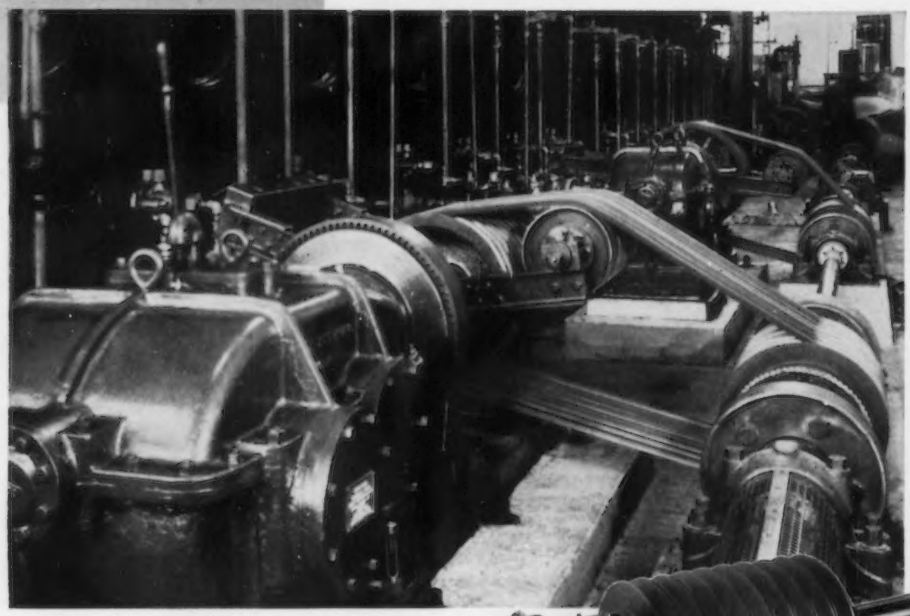


more than 16 years on the job!



SANDY HILL DRIVE features "clean" design for easy maintenance. When *Vari-Pitch* sheaves are used neither basement nor mezzanine is required for the line shaft.

EXCLUSIVELY from Allis-Chalmers are these integral shaft *Vari-Pitch* sheaves. On your paper machine drives they mean more accurate speed control, more continuous output.

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Regulating this remarkable installation are integral shaft *Vari-Pitch* sheaves. Their use has resulted in unvarying draw between sections and true simplicity of operation.

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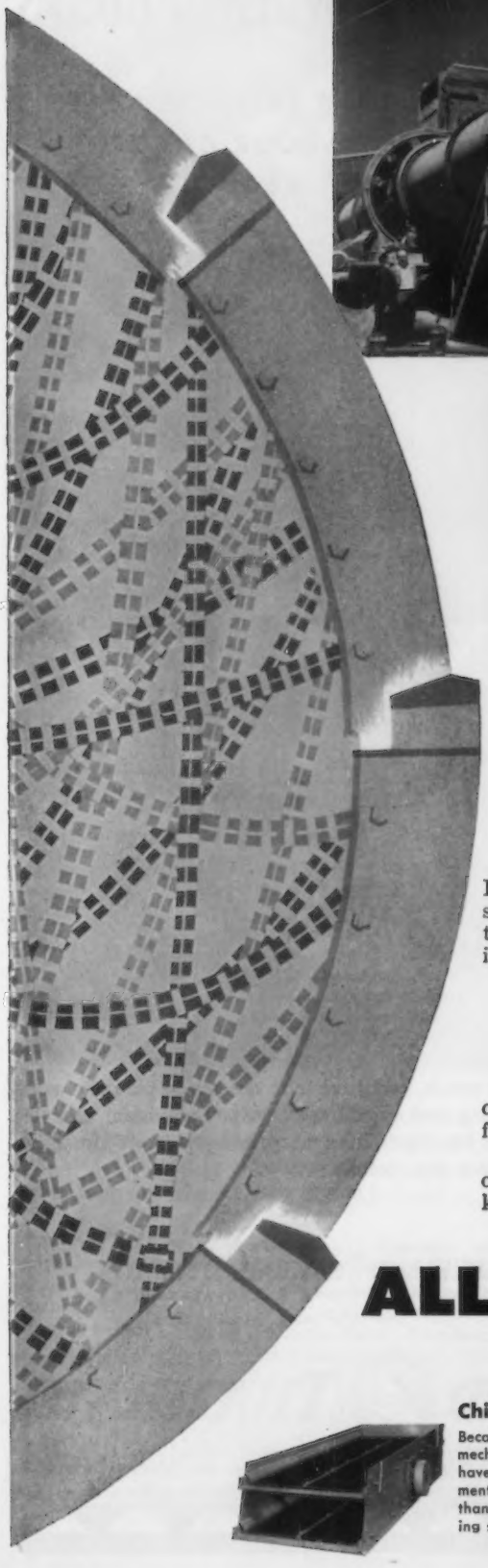

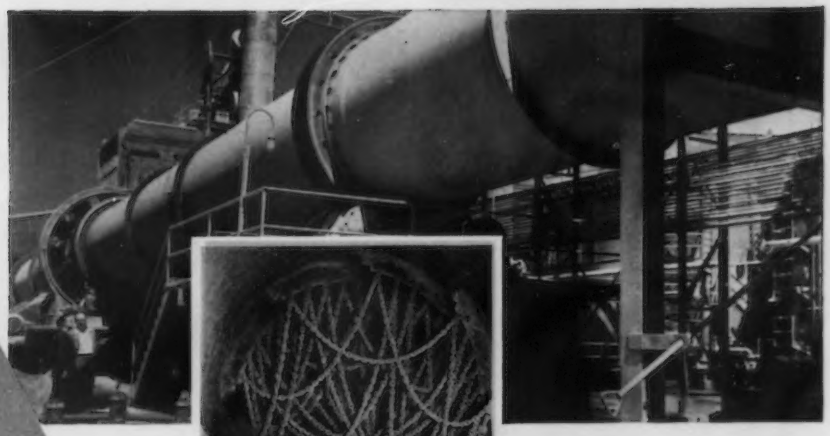

"Chained heat"

speeds drying, cuts fuel costs, reduces dust loss in an ALLIS-CHALMERS LIME SLUDGE KILN

In the Allis-Chalmers lime sludge kiln, a designed maze of chains shackle heat to its job. With this patented heat recuperating system in the feed end of the kiln, accelerated drying is accomplished in three ways:

1. By direct transfer from chains. (Chains hang in hot gases.)
2. By lifting material into path of hot gases.
3. By directing flow of gases over sludge bed under suspended chains.

By effectively capturing and channeling heat, the Allis-Chalmers chain arrangement provides a highly efficient method of cutting fuel requirements and reducing dust loss.

For complete information, see your nearby A-C representative or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wisconsin. Ask for Bulletins 07R7010 and 07B8565.

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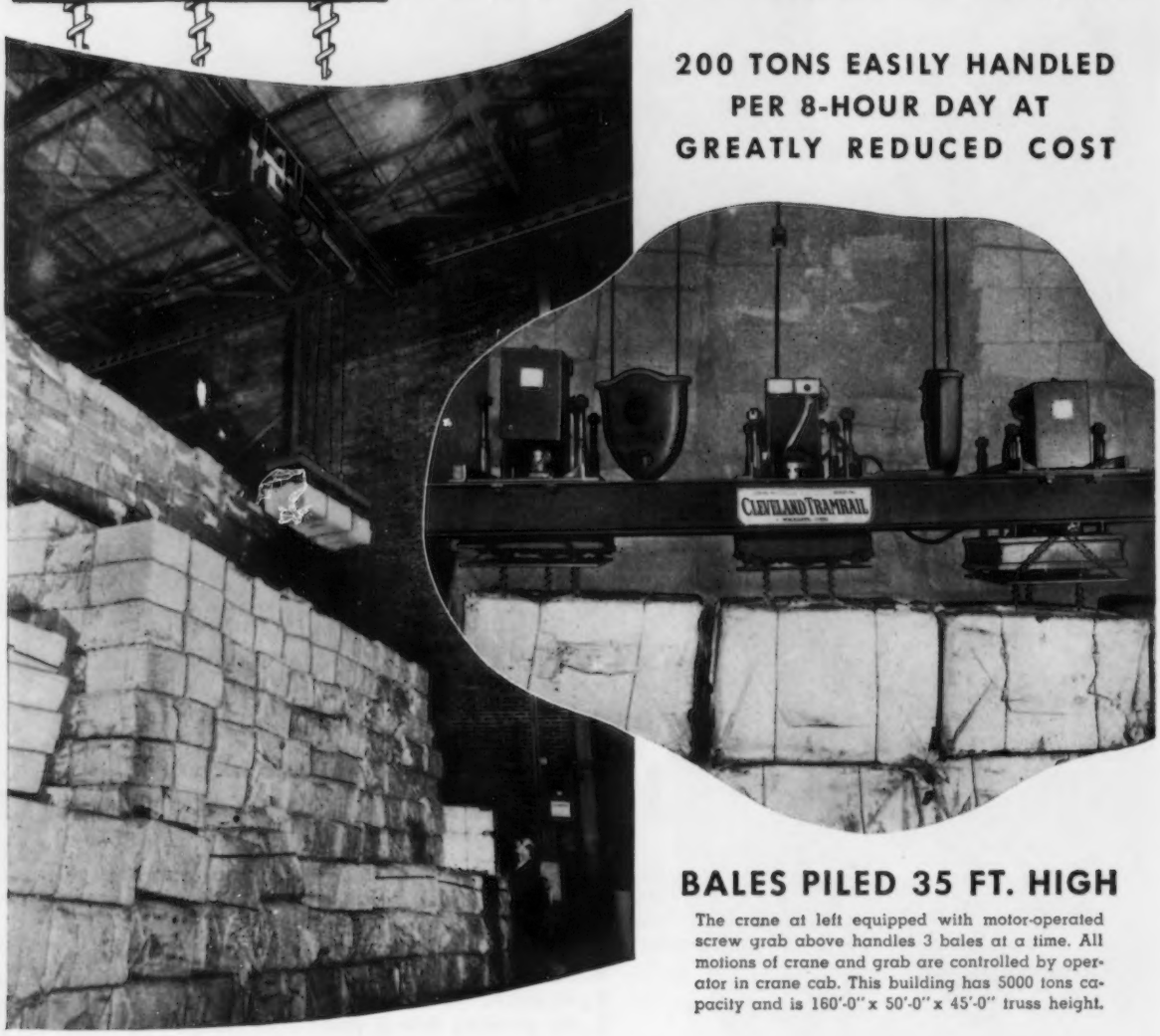
Chip Screens

Because of the two-bearing mechanism, *Ripl-Flo* screens have lower power requirements and less maintenance than conventional four-bearing screens.

Pulp Screens

Operating at high pulp consistencies, *Low-Head* pulp screens save water and power. Maintenance is simple. Mechanism may be removed as a unit.

SCREW GRAB REDUCES PULP HANDLING COSTS



200 TONS EASILY HANDLED PER 8-HOUR DAY AT GREATLY REDUCED COST

BALES PILED 35 FT. HIGH

The crane at left equipped with motor-operated screw grab above handles 3 bales at a time. All motions of crane and grab are controlled by operator in crane cab. This building has 5000 tons capacity and is 160'-0" x 50'-0" x 45'-0" truss height.

Man-hours spent handling bales of pulp are greatly reduced when a Cleveland Tramrail overhead crane and screw grab are used. And more pounds are stored per square foot, because no aisleways are required and also because of high piling. Safety is improved.

As a result, great savings are made on both warehousing and handling of pulp. Equipment like this pays for itself in a surprisingly short time. Let us give you details.

GET THIS BOOKLET!

Gives details on a 5000 ton and a 1100 ton pulp warehouse.

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Exclusive **Nose Baffle**

Keeps B&W Recovery Units

ON THE LINE LONGER

Forced outages and down time are expensive in terms of both lost production and costs involved in getting recovery units back on the line. Keeping those costly, non-productive periods few and far between,—to clean and remove smelt deposits—is the job of the NOSE BAFFLE found *exclusively* in B&W Recovery Units.

PROBLEM—How to shield the ash deposits on the superheater from the radiant heat of the furnace, and direct the flow of high-temperature gas from the furnace so that all of the gas is cooled to the same degree before entering the superheater. The function of the Nose Baffle is to solve this problem.

RESULT—Through the use of the B&W Nose Baffle, ash deposits in zone where superheater tubes are closely spaced are soft, powdery and easily removed. The B&W Nose Baffle cuts frequent, difficult cleaning to the minimum and completely eliminates cleaning outages. Lower operating cost may be realized from lower temperatures, improved cleaning and continuous operation. The B&W Unit stays on the line longer.

And high availability is one of the many benefits of a B&W Recovery Unit. For nearly 20 years B&W Recovery Units have demonstrated economical operation and high availability in leading pulp and paper mills. The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.

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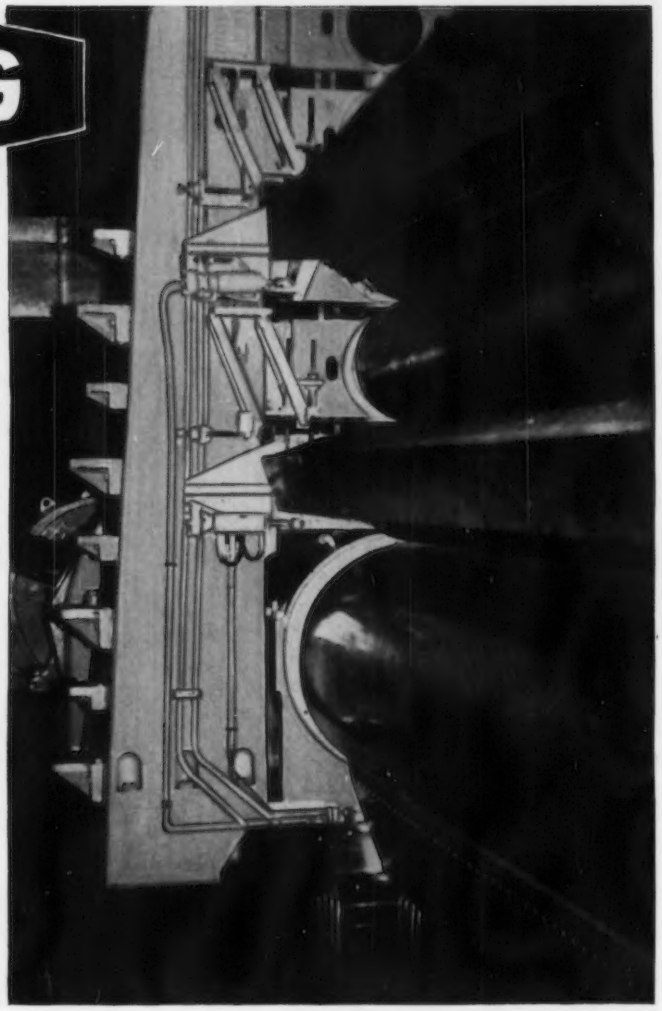
LODDING

Just what the doctor ordered....



Lodding special linkage design because of special frame on this calender . . . . doctors retractable for roll changes. Another example of the long-standing Lodding principle:

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Delivering *results.*

LODDING ENGINEERING CORPORATION

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Champion Unsettles Apple Cart

Something new in employee plans for our industry has been announced by Champion Paper & Fibre Co. Champion has undertaken to guarantee its employees 48 weeks of employment in 1958 or equivalent pay. Executives of other paper companies, when contacted for opinions, have confidentially expressed doubts of the advisability of Champion setting such a precedent, as far as the industry is concerned, at a time when our prospects for this year are uncertain. See page 18 for details of Champion's plan.

Potential Market for Paper Bags

One of the great potential markets for paper bags, which has barely been tapped so far, is in the use of flexible packaging to replace rigid containers such as steel and fiber drums and boxes for such things as chemicals, H. V. Howes, vice president and director of sales, Bemis Bro. Bag Co., stated recently. He said, "New techniques combining polyethylene with textiles and paper make it possible to provide packaging equal to glass and metal containers. Use of these new bags saves shippers in initial cost, freight costs, and storage of empty containers."

Newsprint Capacity Up 7% in 1958

Capacity of North American newsprint mills in 1958 is 9,338,516 tons. This is an increase of 661,445 tons or 7% over 1957 capacity. Canadian mill capacity in 1958 is 7,238,516 tons, an increase of 482,445 or 6.5% over 1957. Capacity of U. S. mills in 1958 is 2,100,000 tons, an increase of 179,000 or 8.5% over 1957.

NSSC Waste Liquor Round-up

Biggest problem to further expansion of neutral sulphite semi-chemical recovery is disposal of the waste pulping liquors, i.e. stream pollution. We are therefore very pleased to be able to present in this issue a detailed round-up on the subject of NSSC liquor burning and chemical recovery.

Construction Outlook for '57

The rate of increase in building costs eased through the last months of 1957, as shown by Morton C. Tuttle Co.'s Index of Building Costs. Prices of building materials continue to soften but Tuttle anticipates that any decrease will be more than offset by increases in rates of construction labor.

Public Relations On the Rise

Only recently has our industry and its individual companies evidenced interest or concern about public relations. This magazine has long agitated for more activity in this area. During the past two years a number of area meetings have been held on the subject of "Community Relations." This term is apparently used to describe public relations with an emphasis at the community level. There are apparently still top executives in our industry who dislike or fear "public relations," hence the use of this euphemism. The broad scope of a recent conference on this subject is reported in detail in this issue.

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Swan-Finch Tie Denied By Doeskin

Leon Henderson, former chief of the war-time Office of Price Administration and current president of Doeskin Paper Products Inc., was the first Federal Court witness in an investigation by the trustees of Swan-Finch Oil Co. for a "missing $3,000,000" of Swan-Finch assets.

Under questioning by George C. Levin, attorney for the trustees, Mr. Henderson said that he had assumed the presidency of Doeskin last December. The company allegedly was a subsidiary of Swan-Finch.

Asked by Mr. Levin whether he knew that Swan-Finch held stock in Doeskin valued at $3,423,068, Mr. Henderson replied, "not according to Doeskin books."

The former O. P. A. head, when told by Mr. Levin that an audit of Swan-Finch books disclosed this holding, replied that this might be so but there was nothing in Doeskin ledgers to show any such transaction.

So far as Mr. Henderson knew, he said, Swan-Finch had no Doeskin stockholdings. Mr. Henderson said he was a friend of Lowell M. Birrell, alleged mastermind in the complex operations of the bankrupt company.

Wants Subsidized Newsprint Mill

Senator Proxmire of Wisconsin plans to introduce a bill in the U. S. Senate authorizing a federal loan for construction of a newsprint mill in northern Wisconsin. Senator Proxmire states that the project calls for a combination commercial and research pilot plant to make newsprint from low grade hardwoods.

Japanese Looking for Brazil Mill Site

Sanyo Pulp Co. Ltd. of Japan will send a three-man team to Brazil to make a two-month survey of the prospects for opening a pulp and paper plant in the republic. The plans are to set up a small scale paper mill with the possibility of expanding.

M. C. Walsh

Champion Acquires Brazilian Interest

Champion Paper and Fibre Co., Hamilton, Ohio, has acquired an interest in a new Brazilian company that is now erecting the first completely integrated bleached kraft pulping plant in Brazil. Champion will be responsible for its management and operation. M. C. Walsh, with Champion since 1929 and for the last four years manager of Champion's Washington, D. C., office, has been elected president of the new firm.

The mill, located in the state of Sao Paulo, will have a complete chemical recovery unit and its own caustic soda production facilities. It will have an initial capacity of about 150 tons a day of bleached kraft pulp manufactured from eucalyptus.

The company will sell its pulp to the Brazilian domestic market. It is expected that the plant will be ready for production early in 1959. The mill will employ about 300 people, most of whom will be Brazilians.

The mill is being designed by a Canadian consulting engineering firm, Statler, Hurter and Co. Christiani-Nielsen Co., international contracting firm, will erect the mill and install machinery.

Paper and Board Production

According to the American Paper and Pulp Assn., the ratio of the United States production to mill capacity for the week ending January 18, 1958, was 89.1 per cent compared with 88.7 per cent revised for the preceding week. The ratio was 96.4 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending January 18, 1958, was 90 per cent compared with 88 per cent for the preceding week and 95 per cent for the corresponding week last year.

(Detailed statistics on page 18.)

Honduras Plans Paper Industry

The first sample of Honduran newsprint paper was recently delivered to the Honduran National Economic Council, an initial step in the creation of a $50 million pulp and paper industry there.

The sample is the first of a series being made by the U. S. Forest Products Laboratory in Madison, Wis. from eight tons of Honduras pine.

The wood was shipped to the United States to test its applicability for the manufacture of newsprint, kraft, bond and other types of paper.

A mission from the Food & Agriculture Organization of the United Nations headed by Paul Le Cacheux is in the midst of technical studies started last year. Although they will not be completed until the middle of this year, Mr. Le Cacheux confirmed that the feasibility of the project has already been established.

"Clupak" to License Use of Stretchable Paper

Cluett, Peabody & Co. Inc. and West Virginia Pulp & Paper Co. on January 30, jointly announced the formation of Clupak, Inc.—an organization created to license paper manufacturers to use its stretchable paper process.

Pulp Purification Program at TAPPI Meeting

Programs for this Pulp Purification Committee meeting February 20 at the annual TAPPI meeting in New York City includes:

"Alkaline Extraction of Spruce Pulps" by Kyle Ward, Jr. and Maija L. Murray of the Institute of Paper Chemistry, Appleton, Wis. The paper to be given by Dr. Ward.

"The Bleaching of Eucalypt Pulp at the Maryvale Mill of the Australian Paper Manufacturers Ltd. by W. H. Alger, N. W. Hansen and by K. Linke. The paper is to be read by J. Wertheim of the Australian Paper Manufacturers Ltd., Melbourne, Australia.

"Peroxide Bleaching as the Final Bleaching Process" by Dr. Ferdinand Wultsch, professor at the University of Graz and technical manager at Bruder Kranz Papierfabriken A.G., Graz, Austria.

"Carbonyl Groups in Cellulose and Color Reversion" by W. H. Rapson and C. B. Anderson of the University of Toronto, Canada. The paper is to be read by Dr. Rapson.

"Aspects of Hypochlorite Bleaching" by J. C. Paulson of Buckeye Cellulose Corp., Memphis, Tenn. The paper is to be read by Dr. A. M. Dowell, Buckeye Cellulose Corp.

Tissue Assn. Sets Program for Meeting

Ross A. Fife, executive secretary The Tissue Assn., states that the General Industry Meeting on February 17 will open with a business session at which time a tribute will be paid to Norman O. Seagrave, deceased past president of The Tissue Association, Inc., and past president of Port Huron Sulphite Paper Co., Port Huron, Mich.

John B. Kohl, president of The Tissue Association and general sales manager of Northern Paper Mills, a Marathon Division of American Can Co., will sound the keynote for a new year and present prominent speakers. Calvin D. Johnson, a former U. S. Congressman and presently assistant to the vice president in charge of government relations at Remington-Rand Division of Sperry-Rand Corp., will speak on the free enterprise system, sub-titled, "Don't Sell America Short."

John Vogel, economist for A.P.P.A., will speak on the "Economic Outlook for 1958" in the paper industry and general business. Mitchael B. Weir, counsel of the firm of Downington, Bartholow and Miller will give a review of legal developments on the legislation front.

Carlton A. Denny

David C. Knowlton

George V. Johnson

Specialty Paper, Board Groups Re-elects Officers

The 24th annual meeting of Specialty Paper and Board Affiliates Inc., held January 16 and 17, re-elected its officers: president, Carlton A. Denny, St. Regis Paper Co., New York City; vice president, David C. Knowlton, Knowlton Brothers Inc., Watertown, N. Y., and secretary-treasurer, George V. Johnson.

The following are the members who were elected to fill vacancies on the executive committee of the association:

Frank C. Ash, Sealright-Oswego Falls Corp., Fulton, N. Y.; J. N. Logan, Newton Paper Co., Holyoke, Mass.; Walter A. Lowe, Falulah Paper Co., Fitchburg, Mass.; W. W. Race, Cornell Paperboard Products Co., Chicago, Ill.; Samuel R. Sutphin, Beveridge Paper Co., Indianapolis, Ind.; J. Bicknell Lockhart Jr., Riegel Paper Corp., New York City.

At Group meetings the following chairmen were elected: Bogus Bristol Group—Samuel R. Sutphin, Beveridge Paper Co.; Tag and File Folder Group—Clarke H. Morian Jr., East Texas Pulp and Paper Co.; Mill Blank Group—Walter A. Lowe, Falulah Paper Co.; Sanitary Food Board Group—Ted E. Button, St. Regis Paper Co.

At the general meeting the president and secretary gave their annual reports recapping developments in the industry in 1957 with specific reference to the role of the association. Robert E. O'Connor, executive secretary of the American Paper and Pulp Association discussed some of the current problems facing the industry and outlined certain phases of the APPA's programs and efforts. James L. Ritchie, executive director of United States Pulp Producers Association Inc., spoke on "Trends in the Pulp Market."

Following the Association's Annual luncheon, participated in by 67 members and guests, Dr. Lincoln R. Thiesmeyer, president of the Pulp and Paper Research Institute of Canada, Montreal, Canada, addressed those present on the subject of "A Few Pulpaperboardniks Of Our Own" which concerned observations on recent revolutionary developments within the pulp, paper and paperboard industry, and some as yet to be launched.

Southeastern Assn. Elects New Officers

Southeastern Paper Trade Assn. held its annual meeting January 17 in Roanoke, Va. President L. M. Murphy presided over the meeting which installed the following newly-elected officers: President, J. B. Brame, Brame Specialty Co., Durham, N. C.; first vice president, George W. Urwick, Henley Paper Co., Charlotte, N. C.; second vice president, A. W. Goode Jr., Southern Paper and Supply Co., Richmond, Va.; treasurer, W. A. Rose, B. W. Wilson Paper Co., Richmond, Va.

The next meeting will be held June 18-21 at the Cavalier Hotel, Virginia Beach, Va. The fall meeting will be October 16 and 17 at Mid-Pines, N. C.

NOW PRESS FELT CONDITIONING TO MATCH MODERN, HIGH SPEED PAPER MACHINES

with the

1958 MODEL VICKERY FELT CONDITIONER

The new *hydraulic drive* permits operation by the remote control panel shown at the left.

The new *traveling header* design keeps the entire unit neatly housed — no outside hoses, no header projections beyond the paper machine frame. This design is especially advantageous where space is limited or where the felt runs directly beneath the Conditioner.

The vacuum boxes are adjustable for trim of felt as well as vertically.

Write for full information, recommendations and layouts.

Close-up of one of the conditioning boxes on this Vickery Felt Conditioner. Warm water goes through the felt and back in several "hairpin" turns as the felt travels along the shoe. More water can be sprayed into the felt and higher vacuum employed without wrinkling the felt even at the highest speeds.

BIRD MACHINE COMPANY

SOUTH WALPOLE, MASS.

REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND, OREGON • ATLANTA, GEORGIA

Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

Monarch Mill Shut Down

The Monarch division of the Allied Paper Corp., Kalamazoo, Mich., has been closed down completely for an indefinite period in a rearrangement of operations. The 400 workers employed there have been laid off, the Allied management announced. The layoff was decided on because of current economic conditions in the paper industry, officials reported.

Manufacturing book and coated papers, the Monarch mill was partly closed during several months of 1957. The book mill was reopened about November 1 after a shutdown of several months, but the coating mill was not affected at that time. However, both operations are being suspended now.

No plans for the future operations of the mill were announced.

Champion Guarantees 48 Work Weeks for '58

Champion Paper and Fibre Co. has announced a plan guaranteeing regular employees of two years standing at least 48 weeks of employment, or equivalent time, during 1958. Champion's president, Reuben B. Robertson, Jr., said that each following year the extent to which the plan would be continued or modified for that year would be announced.

Mr. Robertson and Dwight J. Thomson, vice president in charge of industrial and public relations, and members of their staffs have held meetings with employees at the firm's plants in Hamilton, O.; Canton, N. C.; and Pasadena, Texas, during the past few days to explain the plan. Champion employs about 10,000 people.

At the meetings Thomson said that "now, for the first time, we will have a floor under our goal of steady work and good pay. Our new employment security plan is, we believe, the first of its kind in the pulp and paper industry—certainly the first among any of the major paper companies."

It was explained that any time worked over the normal 40-hour work week would count toward the 48-week work year guarantee. The 48-week period also includes any time absent for paid holidays, paid vacations, disability, disciplinary action, failure to work when work is offered and time lost due to fire, flood, catastrophies or governmental action.

Mosinee Mill Rebuilds Machine

Mosinee Paper Mills Co. is spending half a million dollars to rebuild its No. 2 paper machine. The project should be completed early in February.

John McPherson, plant manager of the Mosinee, Wis. mill, stated that the modernization will result in a cleaner and wider sheet with better edges, better drying at the wet end of the machine, higher machine speed, improved formation in the paper and greater capacity for size press-treated sheets.

Bauer cleaners, a new headbox and slice, new vacuum pump on the suction couch, new motor-generator set, table roll deflectors and relocation of the size press constitute the majority of the machine improvements.

Mersey President Waters Retires

B. J. Waters, 66, is retiring as president of Mersey Paper Co., Ltd., Liverpool, Nova Scotia.

He is to be succeeded by J. M. Jones, currently vice-president and general manager. The changes become effective July 1.

Retiring at the same time is R. L. Seaborne, 68, vice president and woodlands manager. J. A. Parker, secretary-treasurer, will become a vice president while Mr. Jones will continue as general manager.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as percent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1958	Dec. 21, 1957 92.0	Dec. 28 49.4	Jan. 4, 1958 75.5	Jan. 11, 1958 88.7r	Jan. 18, 1958 89.1
1957	Dec. 22, 1956 99.3	Dec. 29 66.7	Jan. 5, 1957 86.7	Jan. 12, 1957 96.4	Jan. 19, 1957 96.4

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	—	—	—	—	—	—	—	—	—	—	—	—	—
1957	94.2	97.0	97.1	94.0	94.6	93.3	75.6	90.7	86.0	93.0	89.8‡	81.4‡	90.9

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1951	1952	1953	1954	1955	1956	1957	1958
Year to Date	—	—	—	—	—	—	—	—
Year Average	98.0	88.6	92.3	91.6	94.9	97.9	90.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Ass'n.

COMPARATIVE WEEKLY SUMMARIES

1958	Dec. 21, 1957 93	Dec. 28 45	Jan. 4, 1958 51	Jan. 11, 1958 88	Jan. 18, 1958 90
1957	Dec. 22, 1956 96	Dec. 29 52	Jan. 5, 1957 75	Jan. 12, 1957 97	Jan. 19, 1957 95

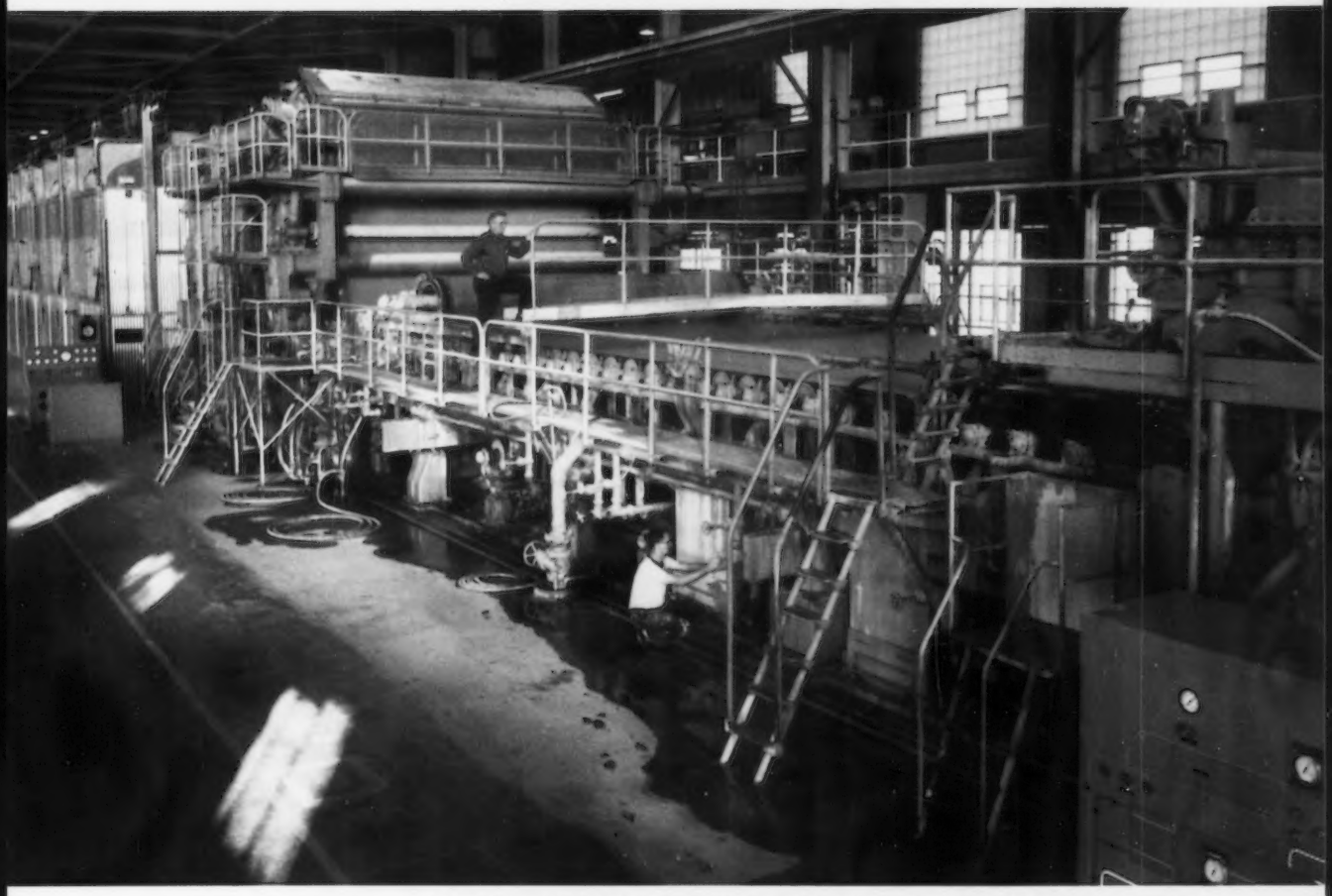
COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	—	—	—	—	—	—	—	—	—	—	—	—	—
1957	91	94	94	92	93	91	72	94	91	97	92	79	90

† *Percents of operation based on "Inch-Hours" reported on a 6-day basis.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Jan. 18, 1958	LAST WEEK ENDING Jan. 11, 1958	CUMULATIVE TO DATE Jan. 1 to Jan. 18, 1958
% Activity	90%	88%	84%
	Tons	*Tons*	*Tons*
Total Production	281,999	275,279	611,678
Liner	94,025	88,698	201,507
Corrugating Material	41,493	46,298	98,145
Chip & Filler Board	4,023	3,763	8,536
Total Container Board	139,541	138,759	308,188
Folding	53,056	50,039	112,062
Set-Up	10,616	9,999	21,950
Special Food Board	23,365	23,866	51,667
Other	55,421	52,616	117,811
Total Boxboard	142,458	136,520	303,490
Total Orders	*Tons*	*Tons*	
Received	225,702	264,368	
Unfilled End of Week	377,663	402,939	



#5 MACHINE, BIRON DIVISION, BIRON, WISCONSIN. PHOTO BY J. W. MILLER

Consolidated Water Power & Paper Company

. . . papermakers for America's leading publishers and printers. Beloit Iron Works is proud to have served this fine company for the past 63 years. The 206″ Enamel Paper Machine at Biron is the most modern of its type in the world. Its advanced design features are expected to set new standards of performance in the enamel paper field.—"*Your partner in papermaking,*" *Beloit Iron Works, Beloit, Wisconsin.*

NEWS OF CONVERTERS

Natl. Container Plans New Chicago Plant

National Container Corp., a subsidiary of Owens-Illinois Glass Co. will build a new plant in the Calumet port area near Chicago to produce corrugated shipping containers to customers in the area.

The new plant, which the company hopes to occupy in the first quarter of 1959, will replace the company's present Chicago plant, which has been sold to Apollo Land Corp. of that city.

The 35-acre site for the new structure was purchased from Chicago & Eastern Illinois Railroad.

The company said the plant will contain 230,000 sq. ft. of floor space, compared with 125,000 for the old unit. Employment is expected to be about 200, compared with 150 workers in the present plant. The company said the new facility would be capable of turning out 30 miles of corrugated container sheet in an eight-hour work turn.

CZ Plans Detroit Corrugated Plant

Crown Zellerbach Corp. has acquired a one-story building in Detroit for the manufacture of corrugated shipping containers.

The plant layout will be remodeled and expanded by the Gaylord Container Division. Operations are expected to start by March 1, 1958.

The Detroit plant when completed will bring to 17 the number of Gaylord converting plants operated in various sections of the country. The new facilities are located on 12 acres of ground.

Hoerner's New Des Moines Plant in Operation

Hoerner Boxes has announced the start of operations at its new plant at 1720 East Douglas St. in Des Moines, Iowa.

The new plant contains 65,750 sq. ft. of floor space and replaces the old manufacturing facilities at 101 East 4th St. Both rail cars and trucks will be loaded and unloaded at special docks inside the new building.

Al Blake is general manager of the plant; Harold McGriff the office manager; and Leonard Lind the superintendent.

John B. Lynch

Joins Bulkley Dunton

John B. Lynch has joined Bulkley Dunton & Co. in an executive capacity. Formerly he was president of his own company in New York and is a director of Sherbrook Pulp and Paper Industries, Quebec. Mr. Lynch, whose association with the pulp and paper industry goes back over 20 years, has spent three years in the State Department assigned to Scandinavia. In his new position with Bulkley Dunton he will handle publication and converter business and continue his interest in Sherbrook Pulp and Paper.

Lloyd E. Williams

Elected VP of Pioneer Paper Stock

Pioneer Paper Stock Co., has announced that Lloyd E. Williams has been elected vice president of the company, a subsidiary of Container Corp. of America.

Mr. Williams formerly held the position of general manager of midwest operations for Pioneer. As vice president, he will be responsible for all Midwest and Pacific Coast operations. Vice President Arthur J. Furth will continue part of his present duties, but will devote the major portion of his time to foreign waste paper problems.

Mr. Williams came to the company in 1934, beginning as an hourly employee in the Packing Materials Department. In 1936 he became plant engineer of Pioneer's Chicago plant and in 1938 he was promoted to assistant plant manager. In 1946 he became plant manager, a position he held until his appointment as divisional general manager.

New Distribution Set-Up for Riegel Offset

Riegel Paper Corp. has just announced that 53 paper merchants throughout the country have been appointed distributors for its new line of offset packing paper. It is specially made for pressroom packing under offset plates or blankets. It is being made in four standard calipers, .002, .003, .004, .005 and in five standard stock sizes.

Continental Closes Richmond Plant

Continental Can Co.'s bag manufacturing plant in Richmond, Va. with some 150 employees, will close about March 1.

The plant, which has operated about 20 years and since 1953 as a Continental plant, covers some 65,000 sq. ft. of ground, excluding the office.

Executives Promoted At Raymond Bag

Promotions of two top executives of Raymond Bag Corp., Middletown, Ohio, were recently announced by Albemarle Paper Manufacturing Co., Richmond, Va., parent company of Raymond.

Clarence L. Mers, who has been president of Raymond since its reincorporation as a division of Albemarle in 1955, was named board chairman and J. R. Clements has been elected president to succeed Mr. Mers.

Mr. Mers joined the original Raymond in 1922. He later became secretary and was president for several years prior to the acquisition by Albemarle.

Mr. Clements joined Albemarle in 1952 as sales manager of its bag division and was made vice president in charge of sales for the combined Raymond-Albemarle Multiwall Sack operation in 1955.

Mengel Elects New VP

Director of Mengel Co., Louisville, Ky., elected Harry E. Miles a vice president and director and appointed him general manager of the company's corrugated box division.

He has been with the company for 25 years and for the past nine years has been general sales manager of the corrugated box division.

As division general manager Mr. Miles succeeds James C. Courtenay, who is retiring after 39 years. Mr. Courtenay also has resigned as vice-president but will continue as a director.

Other personnel changes include the appointment of R. Wells Covington as general sales manager and G. W. Colvin as manager, production and purchasing, of the corrugated box division.

Mr. Covington was formerly director of purchases of the corrugated box division. Mr. Colvin was manager of the Winston-Salem, N. C., district of the same division.

Michigan Carton Senior VP Retiring

Fred E. Stowitts, senior vice president of Michigan Carton Co., Battle Creek, Mich., has announced his retirement. He was 21 when he joined the firm as a pressman in 1911.

He rose to assistant foreman of the press room, foreman of the cutting department and then general foreman. In 1931 he was named production manager and five years later was elected secretary of the company, a post he held until 1952. He was elected a vice president of the firm in 1948 and became senior vice president in 1956.

Koch Elected VP of Standard Packaging

Richard W. Koch has been elected vice president and corporate sales manager of Standard Packaging Corp. of New York.

For the past two years Mr. Koch served as marketing consultant to top management of the Continental Can Co. He had previously served as vice president of Dixie Cup Co. where he had specialized in the fields of marketing, sales administration and market research.

Interstate Container Names Vice President

Stanley H. Arffa has been named vice president and New England general manager of the Interstate Container Corp., in New Haven, Conn.

Blaine Loudin

Sales Representative for Union Bag-Camp

Union Bag—Camp Paper Corp. has appointed Blaine Loudin as multiwall bag sales representative covering eastern Pennsylvania and southern New Jersey.

Mr. Loudin joined the Union organization in 1952. He served as production supervisor in the company's multiwall bag plant in St. Louis. At the time of his new appointment, he was a member of the package engineering department.

Rosen to Head Milprint Planning

Shy Rosen has been named vice president in charge of planning for Milprint Inc., Milwaukee, Wis. He had been vice president in charge of eastern operations.

Mr. Rosen will be responsible for the planning of special projects "pertaining to the expansion of the Milprint business." He will work under the direction of Arthur Snapper, executive vice president. He has been with the Philip Morris subsidiary for 29 years.

Jones Made Sales Manager at CCA in Muskogee

Stanley E. Jones Jr., has been appointed sales manager of Container Corp. of America's Muskogee, Okla., corrugated container plant. He joined the company in 1954 in the sales service department, was made a package engineer in 1955 and, in March of this year, was named assistant sales manager of the Muskogee unit.

Manages Atlanta Plant

N. D. Smithson Jr., has been named manager of the Atlanta, Ga., plant of the International Paper Co., Single Service Division.

He has been sales representative for the company in the Carolinas since 1954.

McKinstry Retires from Illinois Envelope

Mark S. McKinstry, has retired from the presidency of the Illinois Envelope Co., Kalamazoo, Mich. where he has been chief administrative officer for 39 years.

He will be succeeded by John W. Lawrence, who was named general manager in October after he and his brother, William J. Lawrence Jr., bought a majority of the stock in the company.

The announcement followed the company's annual meetings of stockholders and directors at the company offices. All other officers and directors were re-elected and John Schaberg, attorney, was added to the board.

Other officers renamed are: vice president, William B. Milham; secretary-treasurer, Harold Fleck, and directors, John W. Lawrence, Mark S. McKinstry, William J. Lawrence Jr., Marvin Schaberg, William B. Milham, Harold Fleck and John Schaberg.

Mr. McKinstry joined Illinois Envelope in 1915 as an order clerk. In 1919 he was elected secretary-treasurer and general manager, succeeding his father, Charles Edward McKinstry. In 1937 he was named president.

Gutches Succeeds Neil at Fort Worth Plant

G. W. Gutches has been appointed general manager of Container Corp. of America's folding carton plant at Fort Worth, Texas. He succeeds J. R. Neil who has retired after 29 years of service with the company.

Mr. Gutches joined Container Corporation in 1937 at Philadelphia as a sales service representative. In 1940, he was transferred to Fort Worth as packaging engineer in the folding carton division. He was named sales manager at Fort Worth in 1948 and later became assistant general manager.

Mr. Neil began his business career in Chicago as a sales representative for Sefton Manufacturing Co., now a wholly-owned subsidiary of Container Corp. In 1940, Neil recommended that the company build a folding carton and corrugated container plant at Fort Worth. His recommendation was based on a survey he made of the state of Texas and the Fort Worth facility is now one of the company's larger properties producing both cartons and containers.

For the past several years, Neil has been general manager of the company's folding carton division and, prior to that assignment, served as general manager for both the carton and container divisions.

For opacity that builds sales in thin papers...

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GET MORE WITH UNITANE! Get printing opacity as well as whiteness and brightness in thin papers with anatase-type UNITANE titanium dioxide. And economically, too! As little as five per cent furnished in a fifteen-pound stock has boosted opacity by more than 25%.

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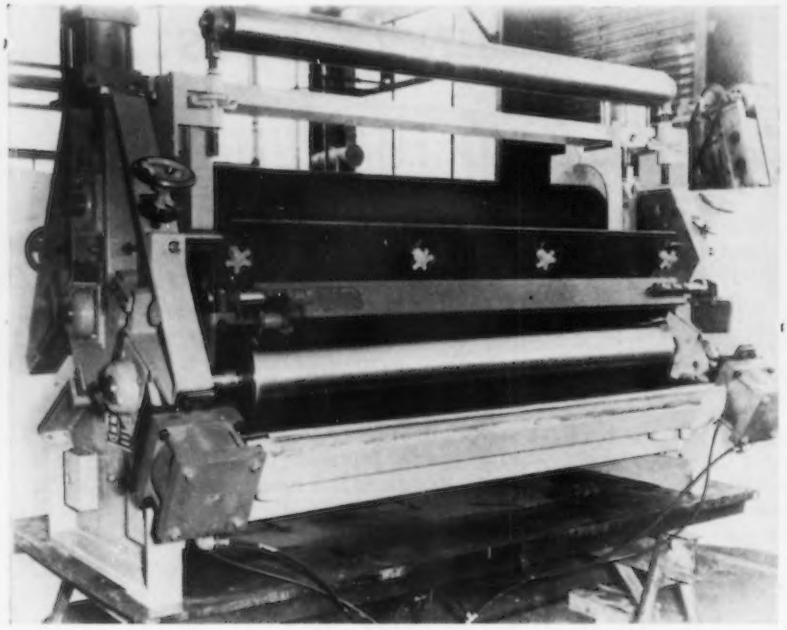
WHITEN AND BRIGHTEN WITH UNITANE

NEW EQUIPMENT FOR CONVERTERS



New Gumming Machine Handles Variety of Adhesives

Coatings, such as animal glues, dextrines and synthetic resins, can be applied by direct squeeze or reverse roll method on the new Black-Clawson Co., Dilts Division, "Y" type gummer (patent applied for). Present units are running at speeds up to 800 f.p.m. on various grades of gummed base stock.

The three rolls are equipped with precision bearing assemblies mounted in heavy cast iron framing. The applicator is in a fixed position. The top roll and the bottom metering roll slide in machined ways. Independent running adjustments position the metering roll and top rubber roll so that close nip tolerances are preset and held. Rolls are pneumatically operated.

The bottom metering roll can be positioned in relation to the applicator roll on either side of the frames. This feature allows the coating to be applied by dip roll, nip fed method, in either direct or reverse roll application. The speed of each roll is independently adjusted so that the variable speed differentials can be maintained. When considering hot melt coatings, the pan is jacketed and the rolls are bored.

The frames are machined to receive strip gumming, smoothing roll and edge doctor attachments. Adjustable dams are furnished for controlling the puddle when applying the coating at the nip. Additional information can be obtained from Black-Clawson Co., Dilts Division, Fulton, N. Y.

Spray Dried Resin is Dextrine-Compatible

Shawinigan Resins Corp. has recently announced commercial production of a new dextrine-compatible spray dried polyvinyl acetate emulsion.

Called Resin D-702, it can be redispersed easily in either hot or cold water, and is compatible with dextrine in all proportions. It can be blended, stored, shipped and used in combined dry form with dextrines. When the dry mixture is added to water, Resin D-702 will redisperse rapidly as the dextrine dissolves, yielding a product similar to that obtained when dextrine is added to a dextrine-compatible polyvinyl acetate emulsion. Reconstituted emulsions prepared from Resin D-702 are stable to the addition of borax.

The new spray dried product is suggested for use in adhesives where its dextrine compatibility and borax-tolerance have numerous applications. It can be used in envelope adhesives for the preparation of high solids, low viscosity gums which will provide faster drying than can be obtained with similar materials at lower solids. When used as a partial replacement for dextrine as an additive to a dextrine-compatible emulsion, it will allow the user to retain more of the desirable properties which synthetic resin confer on resin-dextrine adhesives. The product also is suggested for use with borated dextrines in case and carton sealing adhesives.

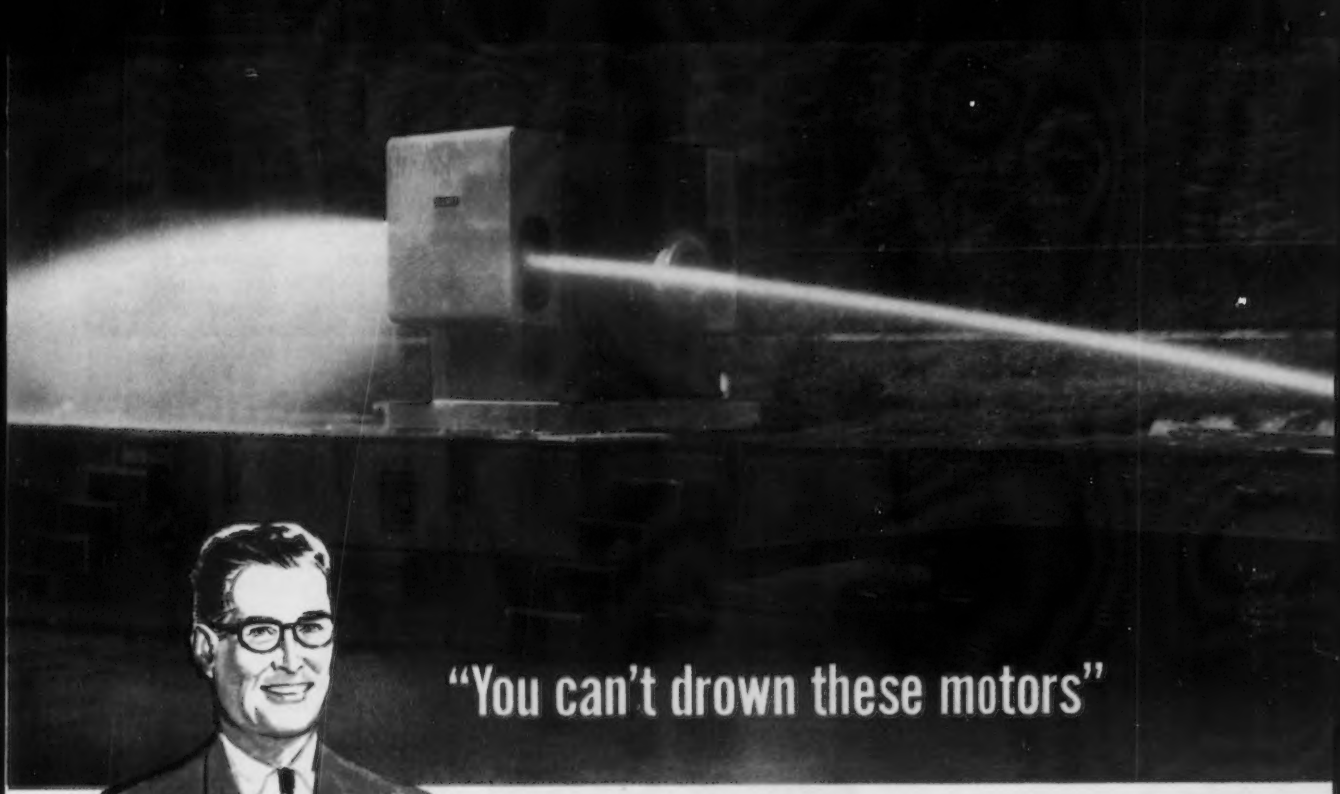
Additional information may be obtained by writing Department 30, Shawinigan Resins Corp., Springfield, Mass.

To Show Specialty Bag Machine

Model 83 self-opening square specialty bag machine, including several new modifications, will be shown by Potdevin Machine Co. at the Packaging Machinery and Materials Exposition in Atlantic City, N. J., March 25-28.

The Model 83 is particularly designed for making coffee bags, cookie bags, dog food bags and other small types in the 7 to 20-pound range. Entirely automatic the machine operates from a roll of paper, trademarking, tubing, cutting, bottoming, counting and delivering completed bags in one operation. The machine is equipped to produce finished grocery bags from kraft or sulphite papers. New developments include vertical delivery and shear cut-off. A duplex attachment permits the making of double wall bags.

More information may be obtained from Potdevin Machine Co., 200 North St., Teterboro, N. J.



"You can't drown these motors"

ALL LARGE ELLIOTT WEATHER-PROTECTED MOTORS are TYPE II class

designed and built beyond NEMA specifications for maximum protection, economy, and long life

OUTDOOR INSTALLATIONS

save thousands of dollars

The really weather-protected motor must be more than a splashproof or modified dripproof machine. Since it uses the air from its surroundings for cooling, it must be designed to separate objectionable moisture and particles from the air stream and prevent them from entering the internal parts.

All Elliott large weather-protected induction motors are of the Type II Class, designed to withstand the most severe weather conditions including rain, snow, sleet, hurricanes, desert heat, etc., and to prevent water or dirt from reaching vital electrical parts. The photo above shows an Elliott weather-protected motor being test-operated under velocities and volumes of water greater than hurricane conditions. After this attempted drowning the motor was completely disassembled. Inspection conclusively proved that no water had entered the internal parts.

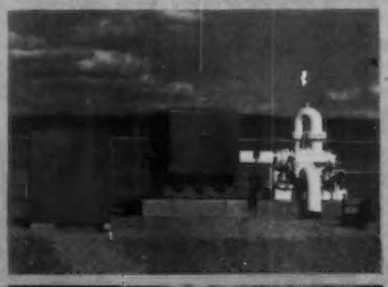
INDOOR INSTALLATIONS

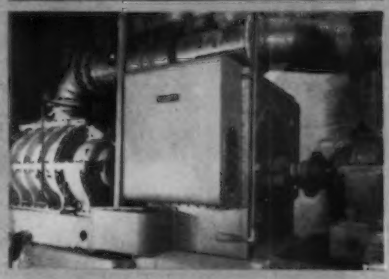
assure long, trouble-free protection

Severe dripping and sometimes frequent hosing in some areas of paper mills (and in other applications) require motors which insure better protection than can be achieved by dripproof or splashproof machines. For such indoor applications, the Elliott-designed weather-protected motor has been the solution—providing protection for personnel as well as the machine.

WRITE for complete details

Bulletin PB 1400-6 gives complete data on Elliott weather-protected motors.





OUTDOOR INSTALLATION *(above)*

An Elliott 1500-hp, 2-pole, weather-protected, squirrel-cage, induction motor serving an outdoor pipeline station.

INDOOR INSTALLATION *(below)*

A 300-hp, 600-rpm Elliott weather-protected induction motor driving a vacuum pump on a paper machine.

ELLIOTT Company

RIDGWAY PLANT, RIDGWAY, PA.

R8-8

Why the Paper Industry Should Do More About...

Community Relations

Ernest F. Barker
Field Editor
Paper Trade Journal

The terms "community relations" and "public relations" received a thorough airing last week when approximately 75 representatives of Ohio's paper industry met at Miami University in Oxford, Ohio to participate in a working seminar on community relations. The seminar was sponsored by the Community Relations Committee of the Ohio paper industry and Miami University.

C. C. Fracker, Champion Paper and Fiber Co., served as general seminar chairman. Karl Bendetsen, vice president operations, Champion Paper and Fibre Co., was keynoter. The seminar was divided into two panel conferences, one on "Communications between Industry and the Community", the other on "Cooperation between Industry and Education". A. S. Anderson, industrial relations director of Champion, moderated the morning session of the "Industry and Community" conference. C. H. Claypool, mill manager of the Oxford Miami Division of Oxford Paper Co., was chairman of the afternoon session.

The "Industry and Education" conference was led in the morning by William Beckett, president of Beckett Paper Co., and by D. G. Driscoll, president of Sorg Paper Co., in the afternoon. Panelists of the "Industry and Community" session were: Joseph C. Seibert, chairman of Miami University department of marketing. He spoke on "Community Evaluation of a Company Personality". Bernard F. Phelps, assistant professor, public speaking, spoke on "Effective Speaking for Men in Business". John Ball, associate professor of English, Miami University, spoke on "Building Good Will with Written Communications".

On the "Industry and Education" panel, Howard L. Ritter, chairman of the department of chemistry, Miami University, spoke on "Industry and University Cooperation in the Instructional Field". Ralph D. Purdy, director of educational field services, Miami University, spoke on "Schools and Industry tool up for Community Progress". William T. Blomquist, director of business placement, Miami University, spoke on "Practical Problems in College Recruiting". The seminar also heard an address by Dr. John D. Millett, president of Miami University, on "The Future of Industry—Education Cooperation". Walter Johnson, mill manager of Pollock Paper Co., Columbus, Ohio, and a chairman of the Ohio Community Relations Committee, gave a welcome address to the seminar after the official luncheon.

COMMUNITY RELATIONS COMMITTEE of the Ohio paper industry (left to right): Walter A. Johnson, committee chairman, Pollock Paper Corp.; John Burnett, Beckett Paper Co.; H. W. Nichols Jr., Fox Paper Co.; Howard Laymon, Mead Corp.; Don C. Hunter, Oxford Miami Division, Oxford Paper Co.; W. Kenneth Brew, APPA; Russell Poole, Mead Corp.; Robert McDade, Crystal Tissue Co.; James Tranter, Sorg Paper Co.; Ted Davis, APPA; and C. C. Fracker, Champion Paper and Fibre Co.

What Is Public Relations?

The following are detailed excerpts of Mr. Bendetsen's keynote address entitled: "What Is Public Relations?"

There never was a time when it was more important that the subject of public relations not only be understood and appreciated but that its principles be practiced. Any concept of public relations depends upon what we consider to be the function of business itself: "The function of business is to do a useful thing in an economic manner and this useful service and economical operation must be understood and approved by the people who receive the benefits." People therefore, expect more of business than the performance of useful and economical service alone. People expect business to be a good citizen.

Recognition of the political nature of the society in which we live has resulted in the adaption by representative business of what has been called the doctrine of enlightened self-interest. This holds that considerations of public policy must often take precedent over considerations of profit. This point of view looks upon profit as the legitimate by-product of a socially useful service efficiently performed. It recognizes that society will not long permit the continuance of a business whose only justification is financial success.

No longer can business afford to rest its case solely upon customer satisfaction measured in terms of price, quality and service. It must also prove its social and economical worth through the assumption of responsibility for the local, state and national welfare.

Probably one of the most common misconceptions of the public relations job is the ballyhoo concept. It is unfortunate that public relations is thought of by so many people as a publicity job and its effectiveness judged by the amount of free newspaper space. Good public relations may often involve knowing when to be silent as well as knowing what to say and when to say it.

The public relations of any institution can be described as the sum of all the impressions made by the institution itself and of the various persons connected with it. The appearance, the action, the speech and the writings of every person associated with a given enterprise contribute toward the general impression of that business. Any adverse opinion created whether it be by the president or by the switchboard operator may have far-reaching effects. The real instruments of good public relations are people. If your actions are such as to make people have confidence in you then you can say your public relations are good. If your actions or word lead to a lack of confidence in you, then your public relations are bad. It's about that simple.

KEYNOTE SPEAKER Karl Bendetsen, vice president, operations, Champion Paper and Fiber Co.

MIAMI UNIVERSITY PRESIDENT Dr. John D. Millett.

Industry and University Cooperation

Dr. Howard L. Ritter, chairman of the Miami University department of chemistry, spoke on "Industry and University Cooperation in the Instructional Field". He said that industry and the universities have not yet reached an optimum in their relations. In the beginning, industry did not require college graduates. After the need arose, the universities responded rather slowly. The universities today are torn between their goals of giving the student the tools with which to make a living and to teach them how to think. "Some have the idea that this business of cooperation between the university and industry means that industry is doing all the cooperating. This is not true," Dr. Ritter said. He maintained that the nature of the university dictates that it should tend in its research efforts to the fundamental rather than to the applied.

Dr. Ritter delved into the pulp and paper curriculum established recently at Miami University. He called this an excellent example of industry and university cooperation. He stressed that the university would not for example set up a curriculum for mortuary science or cosmetic chemistry because such fields are too narrow and too confined. The paper industry, however, is a much broader industry in which a broad basis of knowledge and background are required. The best the university can do, therefore, is to provide a broad background to its pulp and paper students.

This panel conference brought together two especially outstanding intellects, one representing the universities, the other the paper industry. State Senator William Beckett, president of Beckett, Paper Co., moderated the morning session.

Industry has a twofold stake in the university student: (1) To increase the quality of the student and (2) to increase the quantity of students available to the university. The latter is a public relations job because industry must do its share of work in making attending universities attractive to youngsters who have not made up their minds. Not enough is being done along this line, according to Dr. Ritter. He suggested more educational films and popular newspaper and Sunday supplement articles describing the paper industry.

He then delved into the problem of improving the quality of the university student. One fundamental problem is the actual organization of the university experience. Spending time in industrial laboratories ("getting their feet wet and their hands dirty") is very much desired. If the industry would examine the cost of providing summer jobs to students who specialize in the pulp and paper field it would find that the cost per student would be surprisingly minimal.

College Recruiting Problems

Dr. William T. Blomquist, director of Miami University business placement bureau, spoke on "Practical Problems In College Recruiting", emphasizing the value of college visitation. Miami University recommends to companies that they supply the university with information about their company prior to the actual college campus visit. This consequently gives the company recruiter the opportunity to talk with pre-briefed graduates. If the campus visitation is too expensive to smaller companies, letters to the university are also a proven method of company recruiting. Most universities do an admirably conscientious job of disseminating company information to its graduating classes. The Miami University

"COOPERATION BETWEEN INDUSTRY AND EDUCATION" PANEL: Dr. Ralph D. Purdy, director of Miami University education field services; Dr. Howard L. Ritter, chairman of Miami University department of chemistry; State Senator William Beckett, president, Beckett Paper Co., moderator; and Dr. William T. Blomquist, Miami University director of business placement.

Placement Bureau also serves industry by making students available for summer jobs. Dr. Blomquist stressed this as a real benefit to students in practical experience and income and as a valuable benefit to industry because it gives the company the opportunity to evaluate students on the job without long-run employment commitments. "This is a cheap job selection method," Dr. Blomquist summarized.

Community Progress

Dr. Ralph D. Purdy, director of Miami University education field services, spoke on "Schools and Industry Tool Up for Community Progress". He said that many American communities are today in a period of transition. It takes the alertness of all leaders to recognize this transition. However, too much of this is left to the educators. Small communities are going out of existence because they can no longer provide industry's needs. The community should and must continue as a training center, a source of business and as a school and church center.

"We have a responsibility together to further community progress," Dr. Purdy said. He then posed this question: "Have you as an industry ever thought of what you want the children of your community to learn? What do you believe to be your responsibility as an industry to your community?"

A Company Personality

One of the Community Relations Seminar's highlights was provided by Dr. Joseph C. Seibert, chairman of Miami University department of marketing, who in his presentation of "Community Evaluation of a Company Personality," presented an actual case study which he conducted for the purpose of this seminar.

An effective but quite simple public opinion survey can show its company personality and once a company has learned the results of such an opinion survey it will in many cases also learn what to do about it if its personality (as expressed through public opinion) should be changed.

In the actual opinion survey conducted for a southern Ohio paper mill the following questions were asked: 1) Have you ever heard of the company? 2) If you have heard about this company what comes to your mind first? 3) Do you know what the papers made by the company are used for? 4) What do the people of this community say about the wages paid by the company?

Of the 150 inquiries made, 133 knew about the company. Fourteen per cent of these commented on favorable employment conditions such as "a good place to work," and "friendly people." Another 14 per cent of the replies expressed a favorable impression about the company and its product. This category included such favorable impressions as "an old reliable company", "a fine company", and "an asset to the community". Unfavorable impressions were registered by 19 per cent and miscellaneous impressions, including such comments as "a small company", came to 11 per cent. No active impressions were registered by 42 per cent of the replies received.

In the category concerning impressions of the product of the company 30 per cent of the residents replying to the questionnaire knew accurately what the company manufactures. Incorrect impressions came to 24 per cent. This was the group which had the incorrect concept of the grades manufactured by the company; 46 per cent gave no answers or said they did not know. This was registered as "no impressions" in the survey. In the question concerned with the impression of wages paid by the company the replies were as follows. Above average: 25 per cent; average or in line: 19 per cent; below average: 3 per cent; benefits other than wages (good working conditions, etc.): 18 per cent; miscellaneous impressions: 1 per cent; and no impressions 34 per cent.

These results were then broken down mathematically into calculation segments. For instance, Dr. Seibert showed how the group which lacked information about the company varied from group to group. "Who lacks information about the company" resulted in the following statistic. Male: 24 per cent; female 76 per cent; young people: 27 per cent; middle aged people: 62 per cent; and old people: 27 per cent. A similar breakdown on the question: "Who thinks wages above average?" resulted in the following breakdown: Male: 32 per cent; female 24 per cent; young people: 20 per cent; middle aged people: 28 per cent; old people 60 per cent.

It is important that the percentages and the sample and county population (or city or village population) statistics run as close as possible if the survey is to yield accurate results. A portion of this opinion survey was done by mail and it was estimated that cost of each questionnaire mailed came to 60 cents apiece. This included cost of postage, materials, addressing and typing and small gifts for each returned questionnaire. This method of obtaining a company personality, by conducting an opinion survey, is not only a valuable tool for evaluating a company's community relations but it is also a virtual "do it yourself kit" which can be staged quite easily by the company itself. This type of a survey is not recommended for company employees because biased questions can be anticipated.

Effective Speaking

Dr. Bernard F. Phelps, assistant professor of public speaking, Miami University, spoke on "Effective Speaking for Men in Business". Dr. Phelps confined his remarks principally to making a company impression and he broke this down into 1) when you invite the public to visit you and 2) when the public invites you.

When a company stages an open house it is important that all of the personnel who will have contact with the public be chosen carefully for their ability to speak and to meet the public. This starts with the receptionists, and includes the representative of management who speaks to the open house guests, as well as the guides. The public is often prone to judge a company

on how well informed the guide was. How well did he answer the questions and even more important: how well did he answer the questions in language his visitors could understand?

The following list suggests how to improve and assure plant tour success: 1) Select the proper personnel. 2) Give them assistance in welcoming visitors by carefully planning the arrangements beforehand. 3) Prepare the guides rigorously and supply them with information pertaining to the company, its products, its history and its policies. 4) Give the guides the opportunity to know what you want them to say and provide them with information of how to explain special paper industry terms such as "calendars" and "fourth hand". (It is suggested that the guides themselves be given an orientation before they in turn "orient" the public). 5) Guide the guides through the tour.

The second point of Dr. Phelps' address "When the Public Invites You to Speak to Them." There are two types of speaking invitations: 1) The single shot affair when a group requests a speaker from industry and 2) when a company representative prepares a speech and delivers it before civic groups repeatedly.

With the one-time speaking invitations the company's representative should be given adequate information and assistance. A good speech deserves the attention of a specialist but even if a speech is ghost written, the speaker should thoroughly rehearse his address. The object of a speech is to create a good impression for your company and for this reason speaking engagements should rank high in industry's most effective tools of public and community relations. Many companies have also set up speakers bureaus and these are found also among small companies. Speakers bureaus organize speeches and assign one speech to one individual company representative. These available speeches are then offered to the community and because there is such a surprisingly large number of civic, church and social groups in American communities, these speakers bureau addresses can be effectively repeated numerous times.

Building Good Will

Dr. John Ball, associate professor of English at Miami University, spoke on: "Building Good Will With Written Communications".

Four frequently found shortcomings of community relations written communications are: 1) A total lack, in the first place, of community relations program. 2) Lack of the confidence and the control which make the difference. (When the writer doesn't know what he is talking about.) 3) There are carried over by tradition a tone of stuffiness and formality and stereotyped phrases which work directly against community relations writings. 4) The failure to see the other fellow's view.

Dr. Ball recommended methods by which the man charged with community relations communications could improve his writing. Then he suggested these means of improving human relations in writing: 1) Put yourself in the other fellow's shoe. 2) Use every mistake you make as a laboratory. If you don't get through to the public remember it the next time. 3) If you do something right, don't forget how you did it.

Human relations for the company: 1) Motivate from the top. 2) Appoint someone in the company to be in charge of community relations and then leave him alone with the details but not with the policy. 3) Keep communicating about communications. 4) Find out what other firms are doing with communications and community relations. 5) Use the bulletin boards in the company and, therefore, produce "feed back" or an organizationwide awareness of your community relations efforts. 6) Prepare a little manual of the kind of communications which will promote good community relations. 7) Buy a text book and a dictionary for the guy who does the writing. 8) Use the facilities of your national and regional organizations. 9) Call in a consultant in your community relations efforts to get outside motivation.

Good written tools for good community relations: 1) The open house invitation letter. 2) School kits. 3) News releases. 4) Letters of appreciation, sympathy and congratulations to residents of the community, whether they be business leaders or just plain residents. 5) The unnecessary letter. (A Christmas greeting, for example). 6) Letters to other business people in the community. (Letters welcoming new business to the community). 7) Any occasion you can write to your friends and neighbors is the opportunity to make new friends and practice good community relations.

"COMMUNICATIONS BETWEEN INDUSTRY AND THE COMMUNITY" PANEL: Dr. John Ball, Miami University associate professor of English; Dr. Bernard F. Phelps, Miami University assistant professor; C. H. Claypool, mill manager, Oxford Miami Division, Oxford Paper Co., moderator; Dr. Joseph C. Seibert, chairman of Miami University department of marketing.

University President's Address

Dr. John D. Millett, president of Miami University, addressed the seminar at the end of the day. In a switch of introducing Dr. Millett to the audience, Chairman Fracker "turned the table" by introducing the audience to Dr. Millett. He introduced the audience as representing 58 paper mills, producing 1,500,000 tons of paper, employing 35,000 people in 35 Ohio communities with an annual payroll of $151,000,000.

Excerpts of Dr. Millett's address follow: We (industry and universities) have mutual responsibilities to our society. During the past four decades we have witnessed a substantial change in the relationship between the university and the industry. The Twenties was the decade of indifference to each other. In the Thirties there was distrust between the university and industry. During the Forties we concentrated on our own affairs. Now, in the Fifties, we find ourselves in an era of growing mutual understanding. We have mutual interests: men and knowledge. The interchange of information is a vital necessity to both of us. Speaking of fundamental research and what the university can do for industry, Dr. Millett pointed to the field of economics where "we have not yet learned to predict accurately. We have not yet learned to stop inflation without stopping growth. A great deal of work still needs to be done in this very fundamental field. Industry can benefit greatly from the products of the universities."

Theoretical Considerations Relating to Groundwood Screening Systems

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English text by
G. P. Chinn

The method discussed for the evaluation of the efficiency of individual screens can also be used for complete systems. Investigation of various actual systems, working according to the direct method, resulted in the data shown in Figure 1, which have been plotted against the percentage of primary rejects. Again, as with single screens, a clear relationship between the screening effect and the amount of primary rejects can be seen. Screening systems for fine grades only, differ from those for newsprint by a higher amount of primary rejects and, accordingly, by a higher sliver yield. Table I gives the range of efficiency to be expected with normal conditions and can be used as a comparison when checking existing systems. These figures are applicable for a system, before the refiner screening stage (not included), which is operating on the direct screening principle. The conditions for newsprint and finer grades are differentiated. In addition to the normal range, example figures from specific European and North American mills are given.

Considering these test results, the relatively high long fiber loss (20 per cent for newsprint and 30 per cent for finer grades) is remarkable, especially in relation to the low sliver yield in the primary rejects (65 per cent with newsprint and 75 per cent with finer grades). In the light of this, the screening systems of actual practice cannot be classed as very efficient, especially in view of the considerable number of machines and the energy used. In Europe, the simplicity of the North American screening systems is usually admired and astonishment is expressed as to how little equipment is used to screen the large quantity of groundwood produced. The difference between North American and European screening systems can be illustrated by the following facts:

1—In North America, generally, a very sharp screening is applied with its resulting higher sliver content and lower long fiber yield in the accepted stocks.[1]

2—The amount of primary rejects, consequently, is relatively low and generally in the range of 3 to 5 per cent of the total production.

3—Refiners used on screening rejects are designed for very sharp refining action. The screening of the refined stock, therefore, can be done without difficulty.

4—Very often, some or all of the rejects are transferred to other processes for the production of coarser grades of paper or of boards. Besides this, the lower wood costs allow operation not over-sensitive to losses of rejects to the sewers.

To characterize the principles used, the actual practice in European screening systems may be called the result of anxious "over precaution" while North American screening systems are designed for less cautious, mass production.

From the static nature of groundwood screening development and, with regard to the below optimum results obtained from the commonly applied "direct screening in stages," it must be concluded that essential improvements in groundwood screening are only possible with the introduction of new screening principles. In this direction, the publications of Steenberg and co-workers (1) (2) appear to be very useful. The theoretical considerations of the screen-

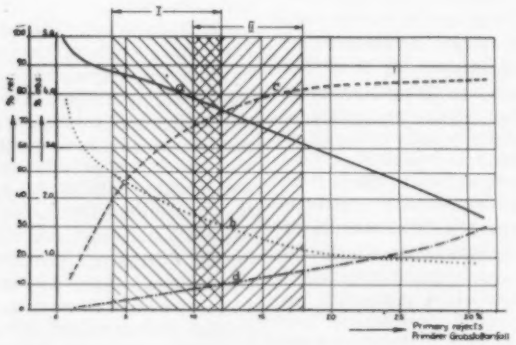


FIGURE 1—SCREENING EFFECT FROM SYSTEMS USING THE DIRECT SCREENING METHOD
I—Characteristics of stock most efficient for newsprint production
II—Characteristics of stock most efficient for fine papers production (feed stock in both cases: 4.5% sliver content; 22% long fiber content).
a—Long fiber yield in accepted stock—% relative. b—Sliver content of the accepted stock—% absolute. c—Sliver yield in rejected stock—% relative. d—Good stock loss in rejected stock—% relative.

[1]North American mills, generally, use floated wood. This results in a higher production of long fibers which compensate for long fiber loss in screening. Besides this, slivers from wet wood are softer and more flexible than those from dry wood and, therefore, are not so dangerous in paper production.

ing of fibrous materials lead to the following principles:

A—The principle of double screening—which is that no accepted stock should leave the screening system until it has been screened at least twice, preferably by using different screening methods.

B—The principle of accepted stock recirculation—which is to recirculate the accepts from a later stage to the inlet of a previous screening stage.

C—The mixing principle—which is to add to the main stock flow only smaller streams in which the sliver content is equal to or lower, and the consistency of which is equal to or higher, than that of the main stock flow.

D—The principle of recirculation of a certain amount of accepts in order to guarantee a constant feed to the screens.

These principles, however, were established only with the aim of obtaining a low sliver content in the accepted stock. In groundwood screening, the long fiber yield is additionally very important and, therefore, certain modifications must be made before the above can be applied to groundwood. While the probability increases that slivers will be rejected with the double screening principle, at the same time, the long fiber yield will decrease. This also applies with principle **D**, recirculation of accepted stock. Therefore, for groundwood screening it appears advisable to use as few screening stages as possible with the aim to maintain sliver content in the accepted stock just below the maximum which can be tolerated for the grade of paper to be produced. The mixing principle must also be observed. The use of the principles developed by Steenberg appear to be especially favorable for the refiner screening stage as they should permit a reduction in the loss of good stock with the primary rejects.

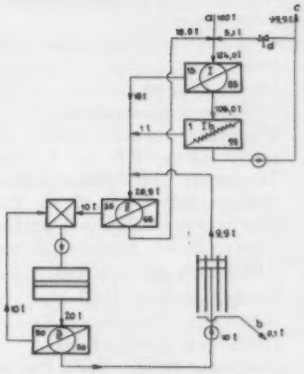


FIGURE 2—A SCREENING SYSTEM USING DOUBLE SCREENING AND RECIRCULATION OF ACCEPTED STOCK

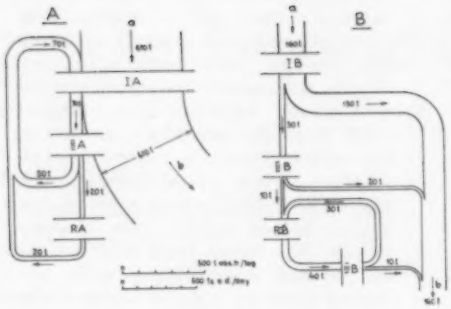
[Figures given are in tons (o.d.) for a production of 100 tons/day; the numbers in the screens correspond to the percentage of rejected and accepted stock]. a—Feed stock from the bull screens; b—Rejected stock from the vortex screens, to sewer; c—Accepted stock to the thickeners; d—Headbox level control valve.

The condensation of the possibilities shown during the discusion of the various screening stages together with the above theoretical considerations towards the introduction of new screening principles lead to the system shown in Figure 2. The groundwood coming from the coarse screens in the grinder room is delivered at a constant rate and constant consistency to the fine screening systems. A thin-stock consistency regulator[2] and a level controller are provided to give these conditions. The level controller provides (whenever necessary) for a make-up from the accepted stock into the constant level headbox of the screens. All stages of the system operate with double screening. The accepted stock from the centrifugal screens in the primary stage is passed through vibrating screens having slotted screen plates. With this, a high safety factor against broken screen plates is guaranteed. The rejects from these screens are fed from a pump sump to the secondary screening stage in which plates with relatively large perforations are installed. The accepted stock from the secondary screens is recirculated to the inlet of the primary stage. The rejects go to a tailings tank and from there to the refiners and refiner screens, which also have relatively large perforations. The accepts from these are passed through vortex type cleaners before being recirculated to the inlet of the secondary screens. The purpose of the vortex screens, arranged in two stages as described previously, is to remove the short, thick slivers which are sewered. The rejects from the refiner screens continue to be recirculated to the refiners until they have been sufficiently reduced in size to enable them to pass the relatively coarse screen plates. For the complete success of such a system, it is essential that the perforations in the later screening stages be as large as possible, taking care, of course, that the accepts recirculated to the preceding

[2]While a satisfactory thin-stock regulator for groundwood has not yet been developed, this example is intended only to show the new screening principle. Until such an instrument is available, the consistency must be controlled as nearly as possible, manually.

TABLE I—EFFICIENCY DATA FOR THE PRIMARY STAGE OF A SCREENING SYSTEM

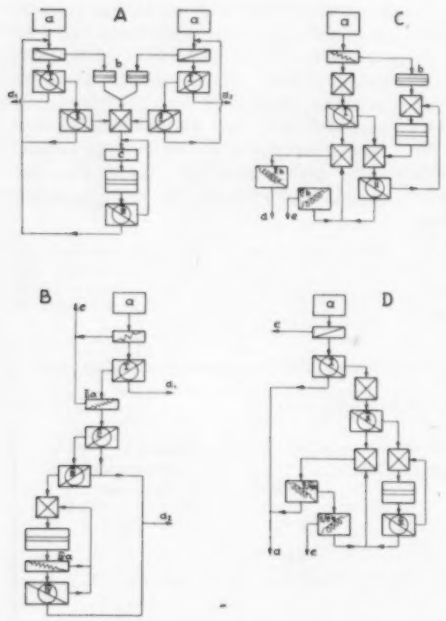
Groundwood for the Production of:	Newsprint			Fine Grades		
		Examples from a Mill in			Examples from European	
	Normal Range	North America	Europe	Normal Range	Mill A	Mill B
I Screening Conditions						
Specific energy consumption—h.p. day/ton (o.d.)	0.75-1.25	1.2	1.3	1.0-2.0	—	2.2
Shower water consumption—USGPM/daily ton (o.d.)	6-11	11	10	3.6-10	3.2	12.5
II Incoming Stock						
Consistency—%	0.6-0.9	0.72	0.52	0.5-0.8	0.95	0.81
Sliver content—%	4-6	4.3	4.2	1-4.5	4.3	2.5
Freeness—Canadian Standard	105-140	95	115	90-125	140	100
III Total Accepted Stock						
Consistency—%	0.4-0.6	0.5	0.38	0.5-0.6	0.6	0.46
Percentage of entering stock	96-88	96.5	93.9	90-82	68.8	86
Long fiber yield—% relative	88-74	84.6	87.0	78-62	32.0	59.2
Sliver content—% absolute	2.5-1.5	3.1	1.8	1.7-1.1	1.0	0.7
IV Primary Rejects						
Consistency—%	1.2-1.8	0.75	1.2	0.8-1.3	3.2	1.2
Percentage of entering stock	4-12	3.5	6.1	10-18	31.2	14.0
Good stock loss—% relative	3-10	2.0	3.8	8-15	28.8	12.2
Sliver yield—% relative	40-73	31.8	60.0	68-81	84.0	79.2



A—North American newsprint arrangement.
B—European newsprint arrangement.
IA—7 Cowan Screens, 0.050 - 0.060 inch perforations; IIA—2 Waterous Screens, 0.065 inch perforations; RA — 5 Haug Thickeners with 5 Bauer Refiners (total, 1500 h.p.); IB—3 Rottrom Screens, 0.085 inch perforations; IIB—1 Rottrom Screen, 0.080 inch perforations; RB—1 Reisten Refiner (140 h.p.); IIIB —5 Voith Centrifugal Screens, 0.035 inch perforations.
a—Groundwood from the bull screens; b—Accepted stock to the thickeners.

FIGURE 3—SANKEY DIAGRAMS OF TYPICAL NORTH AMERICAN AND EUROPEAN SCREEN ROOMS.

stage have a sliver content nearly equal to (but not greater than) the main feed there. As can be shown by theoretical calculations (3), with such a system, it is possible to decrease the sliver content of the groundwood from 5.5 per cent entering the screening system to 0.5 per cent in the accepted stock and, at the same time, to attain the very favorable long fiber yield of above 95 per cent; a range which is not possible using the direct screening system.



Symbols for the Representation of the Different Screen Types
A. Vibrating Screen (low frequency)
1. Flat Screen
2. Cylindrical Screen
B. Vibrating Screen (high frequency)
1. Flat Screen
2. Cylindrical Screen
C. Centrifugal Screen
D. Vortex Screen
E. Refiner Screen (combination)
F. Chests
(e) Feed
(f) Rejected Stock
(g) Accepted Stock
(The numbers represent the screen stage).

FIGURE 4—SCREEN ARRANGEMENTS EMPLOYED IN PRACTICE

A—Screening system for newsprint and rotogravure production in which the bull screen rejects are recovered.
B—Screening system for fine paper production.
C—Screening system for newsprint production in which the principle of double screening is employed by passing all stock through vortex type cleaners.
D—Screening system for newsprint production in which the principle of double screening the accepted stock from the later screening stages is employed.
a—Grinder; b—Hammermill; c—"In-between" thickener; d—Accepted stock to the thickeners; e—Rejected stock to sewer.

Results from Actual Screening Systems

As already mentioned, at the present time the screening systems used in actual practice are generally based on the direct screening principle. However, in recent years some progressive mills have already started to apply the new principles for groundwood screening. In fact, the principle of recirculation of the accepted stock of a later stage to the inlet of the preceding stage had already become apparent from actual practice and introduced before the theories of Steenberg were published. It certainly is not accidential that it is these mills which have high machine speeds and efficiencies. Besides this, recently a considerable number of mills have introduced the principle of double screening by using vortex type screens. They have been applied particularly for rescreening the accepted stock from the later screening stages. The introduction of double screening for the accepted stock from the primary stage has been hindered by:

1—The relatively high cost for power, if vortex screens are used.

2—The fact that a foolproof vibrating screen for groundwood is not yet available.

In the following, some examples of modern screening systems are given.

Figure 3 shows a typical North American and European screening system in the form of two Sankey diagrams which, at the same time, illustrate the principles of direct and indirect screening. Diagram A indicates a North American system using the indirect principle and only two screening stages. The first screening stage (I) consists of seven Cowan screens with 0.050 to 0.060 inch plate perforations and handling 105 tons (o.d.)/day each. The second stage (II) consists of two Waterous centrifugal screens with 0.065 inch perforations and a capacity of 40 tons (o.d.)/day each. The amount of rejects from the first and second stages is 11.5 per cent and 28.5 per cent respectively. Only 3.3 per cent of the total entering stock goes to the refiner system (R) which has five Haug thickeners and five Bauer refiners. The total power used for refining the rejects is 1150 kw., equivalent to 70 h.p. day/ton (o.d.) related to their feed, or 2.3 h.p. day/ton (o.d.) when related to the total production. The accepted stock from the secondary and refiner stages is recirculated to the inlet of the primary screens and, therefore, only the stock accepted by the primary screens leaves the system. The power required for the whole screening sys-

tem is about 2300 kw., equivalent to 4.5 h.p. day/ton (o.d.) total production.

The diagram B illustrates a typical European screening system for newsprint which operates on the direct principle. In the first screening stage, three Rottrom screens with 0.085 inch perforations have a capacity of 60 tons (o.d.)/day each. The second stage (II) consists of one Rottrom screen with 0.080 inch perforations handling 33 tons (o.d.)/day. In the refiner stage (III) are five Voith centrifugal screens with 0.035 inch perforations and with a capacity of 9 tons (o.d.)/day each. The rejects amount to 19 per cent at the primary, 33.5 per cent at the secondary and 75 per cent at the refiner screening stages. Of the total production, 6.3 per cent enters the refining system where one Reisten refiner (150 h.p.) is operated with an energy consumption equivalent to 3.2 h.p. day/ton (o.d.) when related to the refiner feed or 0.8 h.p. day/ton (o.d.) when related to the total production. The rejects from the refiner screens recirculate through the refiner until they have been reduced sufficiently to pass the 0.035 inch screen plate perforations. The accepted stock from each of the individual stages leave the system and are mixed before being fed to the thickeners. The power required for the complete screening system is about 500 kw. or equivalent to 3.8 h.p. day/ton (o.d.) total production. Neither of the above systems recover the course screen rejects.

Some further examples of modern screening systems are given in Figure 4. The examples A and B are of classified screening systems which are provided for running more than one grade of paper.

A—is a North American system provided for newsprint and rotogravure grades and includes the recovery of the rejects from the coarse screens.

B—is a European system designed for finer grades without recovery of the rejects from the coarse screens.

C—is a system for newsprint which provides for double screening of the total accepts in vortex cleaners. The rejects from the coarse screens are recovered.

D—is also a system for newsprint but the double screening with vortex cleaners is only provided for the accepted stock from the later screening stages. The rejects from the coarse screens are not recovered.

The systems used today for the screening of groundwood for newsprint, and even more so for the finer grades of paper, differ considerably. It has only been possible, therefore, to show some typical examples illustrating present day practice. In recent years, more and more attention has been given to dividing the stock into different quality fractions during screening. As this development holds important prospects for the whole operation of the groundwood mill and its control, it will be discussed later.

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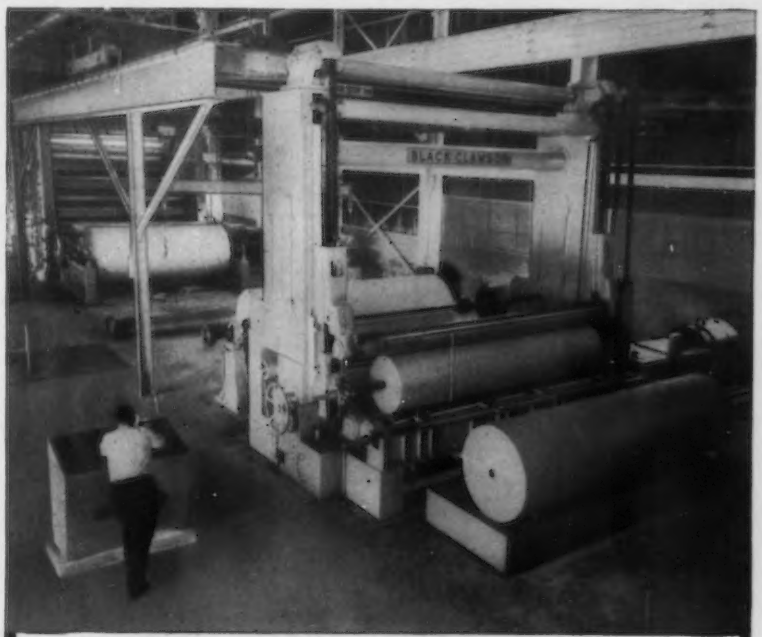

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Bleached Gw'd.	$97.50/100.00	$97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	$157.00/162.50*		$157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		$137.00/ —		
Kraft, Semi-bleached	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd.	135.00/ —	135.00/ —	†135.00/ —	*130.00/ —	
Sulphite, Unb'l. Gl'sn		134.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

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No. 1 Light Blue Overalls	7.25/ 8.00
Percales	6.00/ 6.50
No. 1 Light Prints	5.00/ 5.25
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Cottonades	3.25/ 3.75
No. 1 Washables	2.50/ 2.75

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	Per 100 lbs.
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Cotton Pants & Overalls	2.00/ 2.25
Twos and Blues, Repacked	1.50/ 1.75
No. 2 Roofing	

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Memphis Market

f.o.b. Oilmills

Week Ended January 27	For 100 lbs.
Grade 1 n.a.	
2	$9.50/ $9.25
3 1 cut—felting	8.50/ 8.00
4	7.75/ 7.00
5	6.75/ 6.25
6	6.00/ 5.50
7	5.25/ 5.00

*Based on 73% cellulose.

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	Per 100 lbs.
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Gunny	4.75/ 5.00
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No. 1 Foreign Manila Rope	6.25/ 6.50
Domestic Sisal Strings	

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Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	January 27	January 27	January 27	January 27
No. 1 Mixed Paper	$5.00/ $8.00	5.00/ 7.00	4.00/ —	12.00/ —
No. 1 News	13.00/ 15.00	14.00/ —	14.00/ —	12.00/ —
Overissue News (Lg. size)	16.00/ 18.00	11.00/ 14.00	19.00/ —	16.00/ —
Mill Wrappers	11.00/ 13.00	12.00/ 14.00	7.00/ —	13.00/ —
Old Corrugated Containers	21.00/ 22.00	20.50/ 21.00	22.00/ —	20.00/ —
Super Resorted Kraft Paper	30.00/ 35.00	35.00/ 42.50	35.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts	25.00/ 30.00	32.50/ —	35.00/ —	30.00/ —
(Semi-chem. medium)	45.00/	37.50/ 42.50	45.00/ —	35.00/ 45.00
New 100% Kraft Corr. Cuts	50.00/ 55.00	50.00/ 55.00	55.00/ —	40.00/ —
New Br. Kraft, Env. Cuts	65.00/ 70.00	70.00/ 75.00	55.00/ —	45.00/ 50.00
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	50.00/ —	45.00/ 50.00
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	65.00/ —	45.00/ 50.00
No. 1 Groundwood Shvs.	25.00/ 30.00	24.00/ 30.00	16.00/ —	25.00/ 30.00
White Newsblanks	50.00/ 55.00	50.00/ 57.50	40.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	60.00/ 65.00	60.00/ —	— / —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	70.00/ —	— / —
Hd. White Shvs.	90.00/ 95.00	100.00/110.00	90.00/ —	85.00/ 90.00
Hd. White Env. Cuts	115.00/125.00	120.00/130.00	100.00/ —	100.00/110.00
Col. Tab. Cards	50.00/ 60.00	55.00/ 62.00	47.50/ —	42.50/ —
Manila Tab. Cards	60.00/ 70.00	70.00/ 75.00	65.00/ —	75.00/ —
No. 1 Col. Ledger	28.00/ 33.00	30.00/ 32.50	40.00/ —	22.50/ —
White Ledger	45.00/ 50.00	50.00/ 55.00	52.50/ —	35.00/ —
Mixed Book & Mag.†	18.00/ 19.00	19.00/ 20.00	12.00/ —*	— / —
No. 1 Books‡	25.00/ 27.00	22.00/ 24.00	27.50/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

PRICES OF MATERIALS

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- coml. bulk, c.l. wks. ....cwt. 2.00 / —
- iron-free, c.l. wks. .....cwt. 3.55 / —

Casein, acid prec.:
- dom. sh. pt. c.l. (30 mesh) cwt. 56.00 / —
- Arg. ex. dock .....cwt. 20.75 /21.50
- New Zealand .....cwt. 24.00 /25.00

Caustic soda:
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- flak. & grd. drums, c.l....cwt. 4.70 / —
- liquid 50% tanks.... 2.90 / 3.00
- liquid 73% tanks.... 3.00 / —

China Clay
- dom., dry-grd., airfloat:
- 325 mesh bgs., c.l. Geo. ton 10.00 / —
- 300 mesh, bgs., c.l. Geo. ton 13.50 /14.50
- imp., white, lump, c.l. ex. dock 20.00 /35.00

Chlorine:
- single-unit tanks, works.. cwt. 3.15 / —
- multiple unit, 2-5 cars per yr. 5.25 / 4.05

Lime:
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- quicklime, bulk, c.l. N.Y. ton 22.13 / —

Gum rosin:
- K, M, N, drums, c.l. Savan, cwt. 7.64 / 7.70

Rosin size:
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Saltcake:
- dom. bulk, 100% anh. wks. ton 28.00 / —

Soda ash:
- light, 58% ash bags, wks. cwt. 1.85 / —
- bulk, c.l. wks. .....cwt. 1.60 / —

Sodium chlorate:
- drums, c.l., wks. .....cwt. 9.00 / —
- drums, l.c.l., wks. .....cwt. 9.50 /10.50

Sodium peroxide:
- dms., c.l. E. of Miss. .....lb. .20½/ —
- l.c.l. (same basis) ..... .21 / .21½

Sodium silicate, 40° Be.:
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- drums, c.l. wks. .....cwt. 1.55 / —
- 47° Be. WW.
- tank-cars, c.l. wks. .....cwt. 1.90 / —
- drums, c.l. wks. .....cwt. 2.25 / —

Soybean, protein:
- chem. isol., wks. c.l. bags...lb. .23 / —

Starches:
- Corn, multiwalls, c.l. prod. plant:
- pearl .....cwt. 6.49 / 6.75
- white, dextrins .....cwt. 8.08 / 8.20
- chlorinated .....cwt. 8.25 / 8.35
- potato, Idaho, c.l. wks. ...cwt. 6.50 / —
- East, fr. all. 50 cents cwt.
- potato, Maine, f.o.b. wks. cwt. 6.25 / —

Sulphuric acid:
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- l.c.l. wks. .....cwt. 2.45 / —
- tank-cars, wks. .....ton 18.60 / —

Sulphur:
- crude, c.l. mines, contract, long ton 23.50 / —
- f.o.b. vessels Gulf dock...ton 25.00 / —

Sulphur dioxide:
- liquid, coml. cyl., wks. ...lb. .10 / .12
- multi-unit cars, wks. .....lb. .0535/ —

Talc, fibrous grd., bags:
- c.l. wks., N.Y. .....ton 28.00 / —
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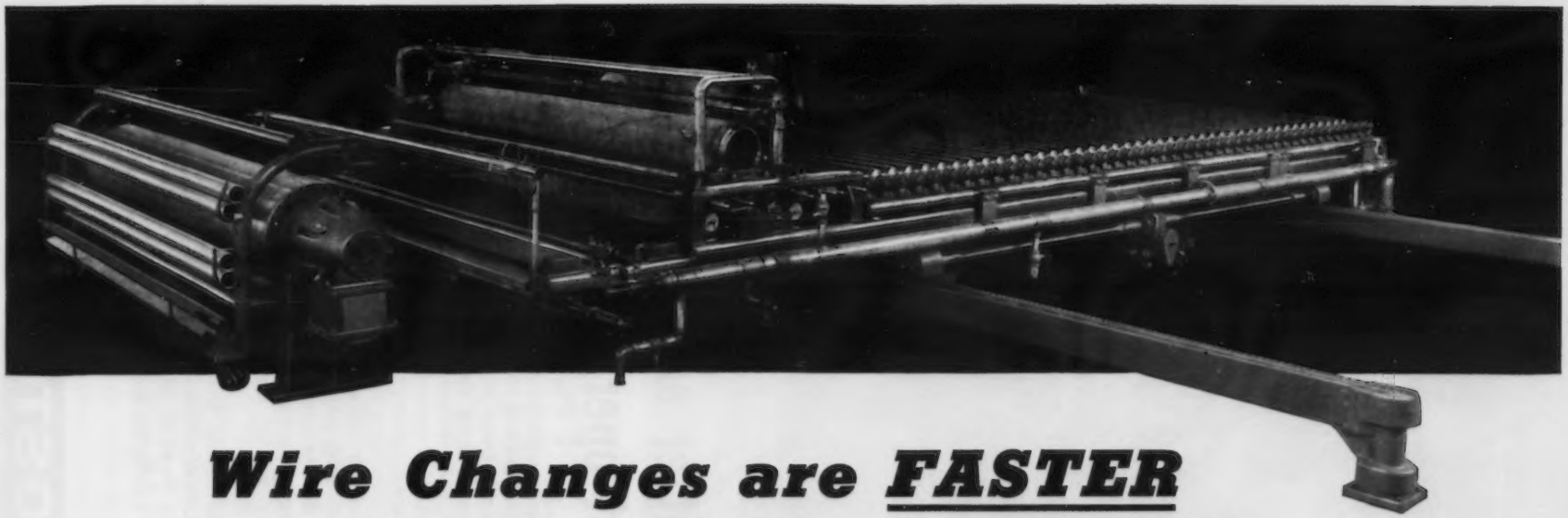
Titanium dioxide:
- anstase, c.l. dlvd. E. bags..lb. .25½/ —
- l.c.l. dlvd. .....lb. .26½/ —
- rutile, c.l. dlvd. .....lb. .27½/ —
- l.c.l. dlvd. .....lb. .28½/ —



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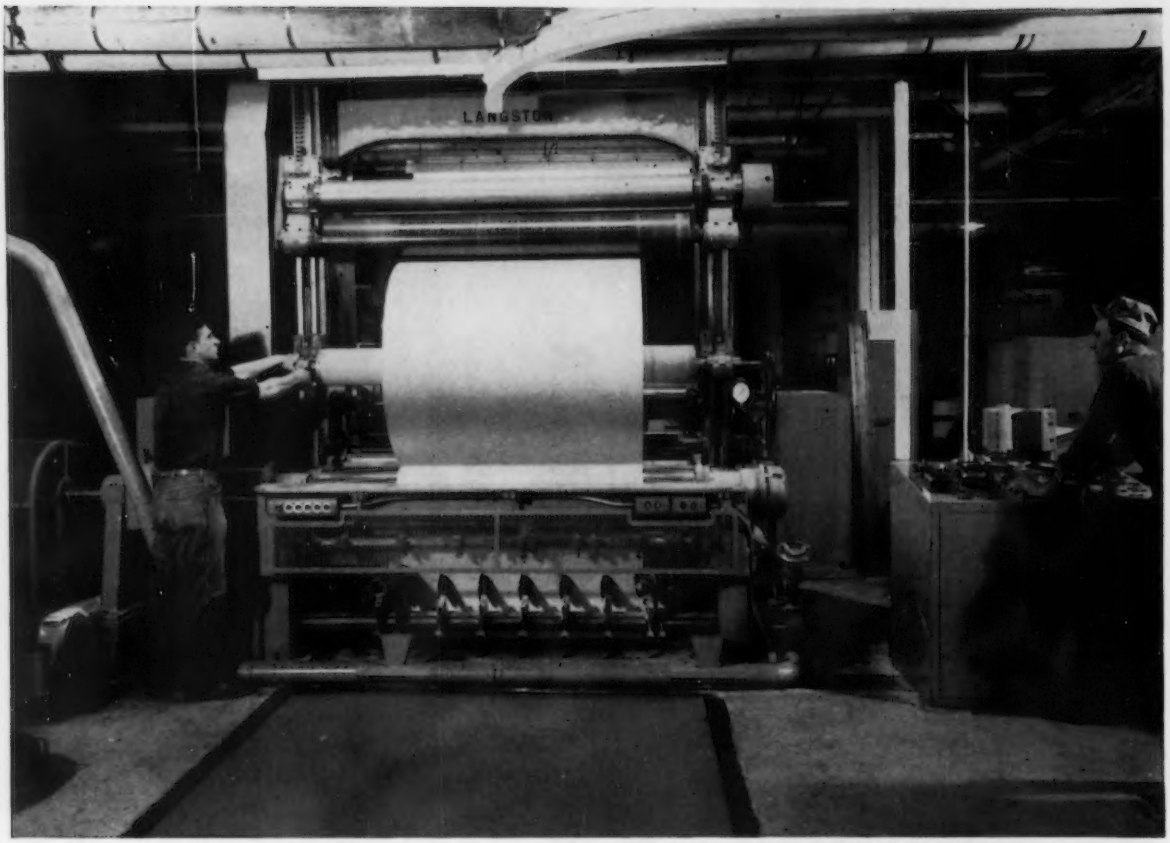

New 72-inch Type CA Langston Slitter and Winder in Marathon Corporation finishing room handles rolls up to 60 in. in diameter at speeds up to 1500 ft. per minute. Finished rolls are lowered by hydraulic drop shown in foreground.

New Langston Slitter and Winder helps Marathon cut operating costs

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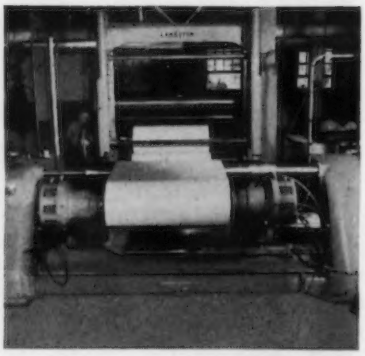

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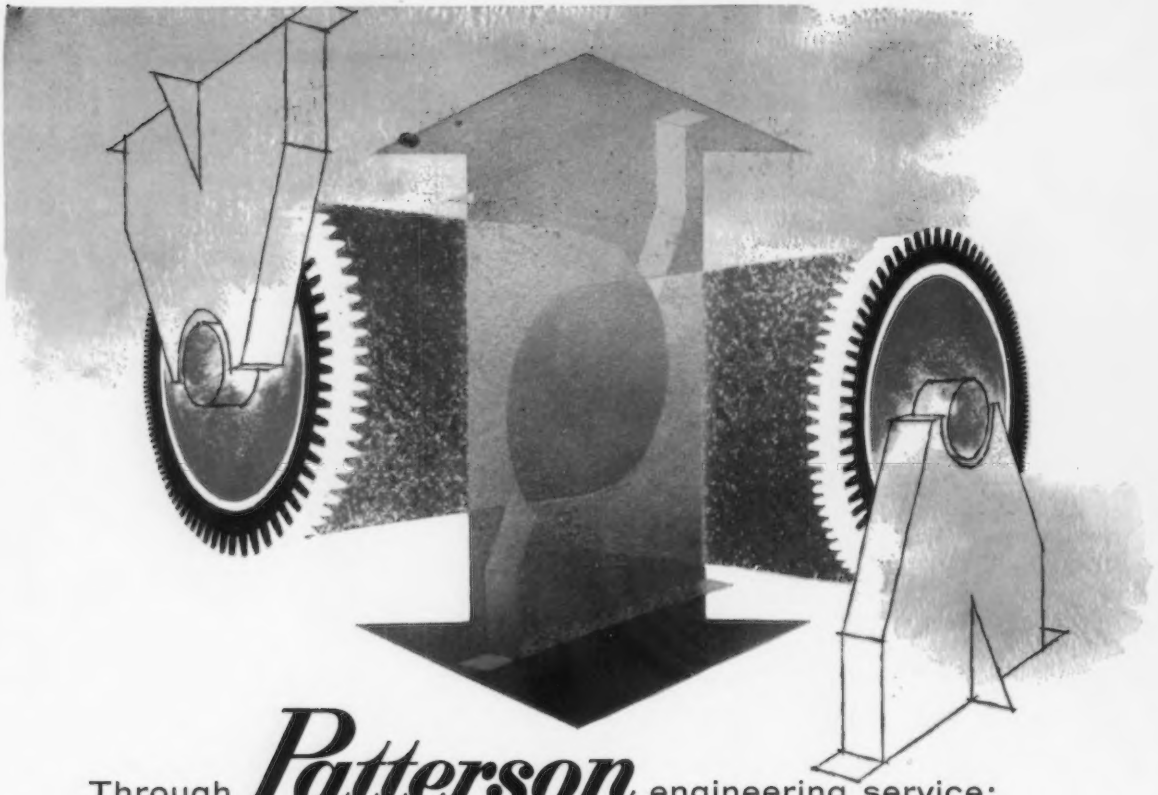

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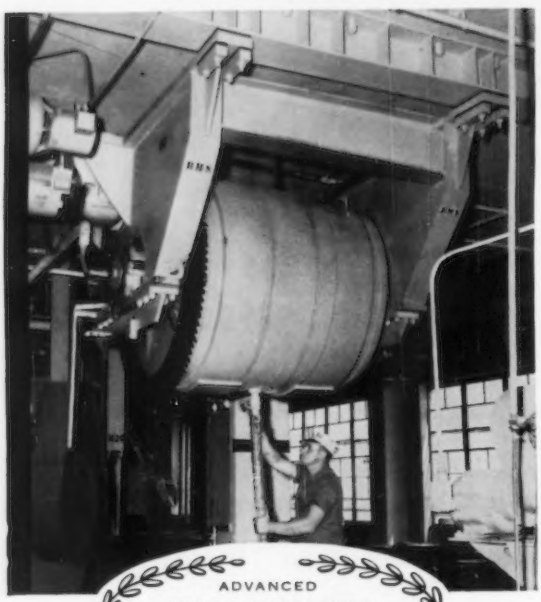

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Three Commercial Processes Now Available for NSSC Recovery

M. R. Shaffer

Chemical Engineering Department
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One of the most remarkable changes in the pulp and paper industry that has occurred since World War II is the rise of the neutral sulphite semichemical process. In the last ten years almost all mills have begun using this process for all or part of their production. In many cases the NSSC has been put in an existing kraft mill and the waste liquor has been used to supply the make-up soda and sulphur for the kraft system.

Where this has been possible, there has been no waste liquor disposal problem. Depending on kraft mill losses, about one-third the tonnage of the kraft mill can be made by the NSSC plant and still allow use of all the NSSC waste liquor in the kraft recovery system as make-up. This is a very excellent procedure where it can be used.

A large number of NSSC mills are in no such fortunate position. Many are rather low tonnage mills so located as to use "farmer" hardwood. They have serious stream pollution problems and the dollar value of the inorganic chemicals in the waste liquors which are sewered is considerable.

The tonnages of NSSC mills have been limited—first, by the amount of liquor which the kraft receiver system could efficiently use, and second, by the stream pollution problem.

Inasmuch as the sulphur in the NSSC process is in the sulphite form, the problem is very similar to that which has faced the older sulphite pulping. With a soluble base the problem is simpler than with the calcium base acid waste liquors but many of the considerations are the same.

It is intended in this paper to discuss three processes for NSSC recovery. These processes have in common their similarity to kraft practice. For more complete reviews of possible methods there are a number of articles available *(1) (2) (3)*. In each of the processes presented here, the waste liquor is evaporated and burned in a kraft-type furnace. That is, combustion is essentially a two-stage proposition, with the first stage being carried out with a deficiency of air, with the second stage completing the combustion when more air has been added to the gases higher in the furnace.

Sulphite Mill Recovery

In sulphite pulping today there are several different systems in which the waste liquor is concentrated and burned in much the same manner as residual fuel oil—that is, as a single-stage combustion process using an excess of air. The magnesium base process—used in one Canadian and three U. S. mills, with another under construction in Alaska—is one example of this single combustion. Some mills have concentrated their calcium base liquor in "switching" evaporators and burned the concentrated waste. Others have used ammonia as a base and then disposed of the waste liquor by burning. The last two cases result in steam generation but do not recover cooking chemicals.

Kraft Recovery

In alkaline pulping the type of furnace which carries out a two-stage combustion process has been in use for some time. A portion of the air is admitted to the hearth or "primary zone" which operates in a reducing atmosphere. The gases leaving this zone are burned with additional air. The sulphur compounds recovered from the primary zone as a molten "smelt" are generally in the sulphide form, the state of maximum reduction. These kraft type furnaces do not operate well with an oxidizing atmosphere in the primary zone. However, if the sulphur must be recovered as sulphite, the maximum state of oxidation, furnaces similar to those used by the acid pulping industry are available.

For various reasons, the three processes under discussion use the kraft type furnace. A detailed discussion of the theory of this type of furnace has been described by T. N. Bauer and R. M. Dorland *(4)*.

NSSC Recovery

In describing the processes it is not intended to imply that any particular process will be generally accepted by the industry. No particular process seems to have an obvious economic advantage. It may be that 50 years from now processes involving incineration of the waste liquors from pulping will seem absurd. However, at this time, with perhaps one exception, all the processes that have been tried on a commercial scale involve incineration. Several other incineration procedures use special reactors, with which the writer has had no experience. The three processes for NSSC recovery described in this paper are all receiving commercial trial; they all involve incineration of the waste liquor in a kraft

The author is indebted to the Babcock & Wilcox Company for their help and cooperation in preparation of this paper.

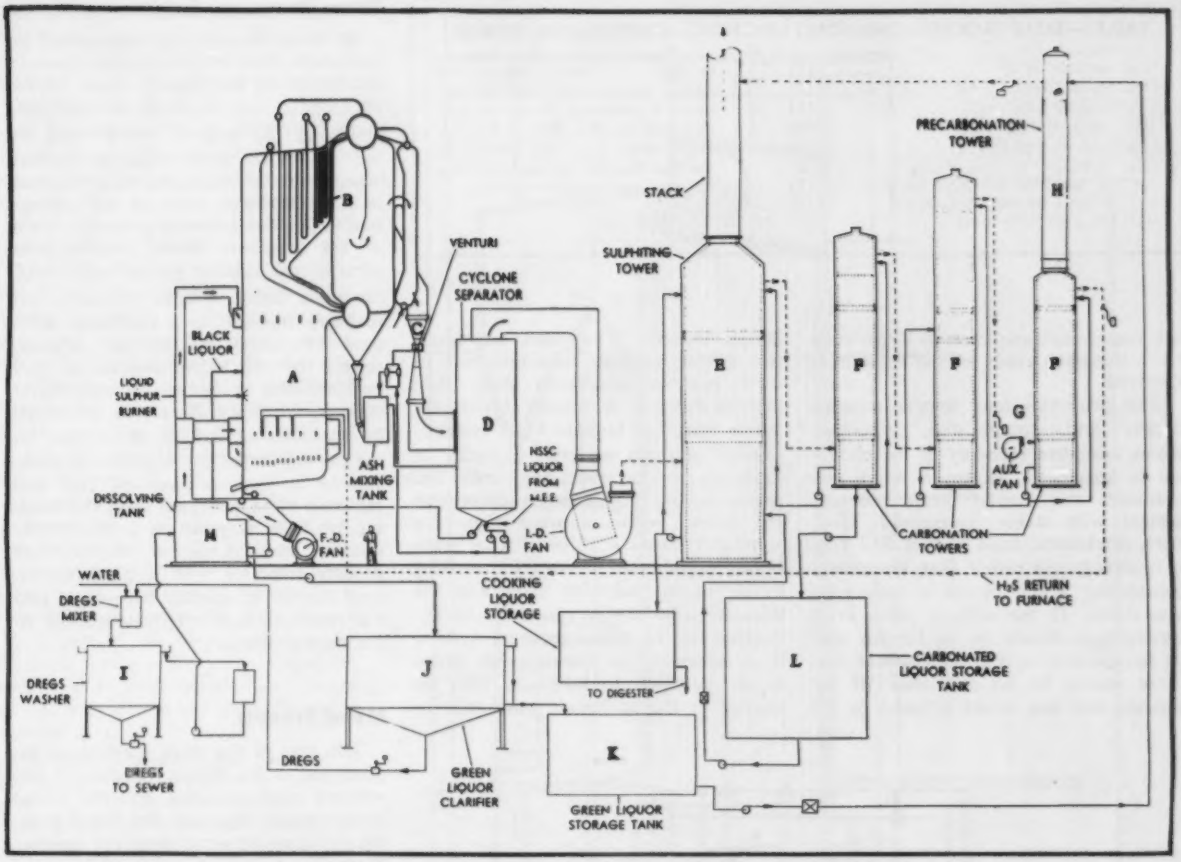

FIGURE 1—Mead Process for Mead Corp. Mill at Lynchburg, Va.

type furnace; they differ mainly in the methods by which the cooking chemicals are reconstituted.

In a qualitative sense the economies of each process will be obvious. The fact that all three processes are being tried shows that there is considerable difference of opinion in evaluating the features of each system. Since NSSC yields vary so widely, it is difficult to generalize on the economics of the process; however, some comparison to kraft recovery can be made. As pulp yield decreases, steam production, capital investment in the furnace and immediate auxilaries, and other factors approach present-day kraft practice. For high pulp yields the investment per ton of pulp production is less; there is a corresponding drop in steam produced and a new economic balance must be struck. The complexity and cost of equipment for green liquor conversion, a process carried out in the kraft mill by the causticizing operation, depends on the degree of recovery of sulphur desired as well as on the method of recovery selected.

It should be emphasized that, in the four commercial trials of these three processes under consideration, only one is larger than the absolute minimum for economical operation. Special features were incorporated in the others to reduce the capital investment and make them commercially practicable. As a result, these jobs will prove only the technical side of the development and

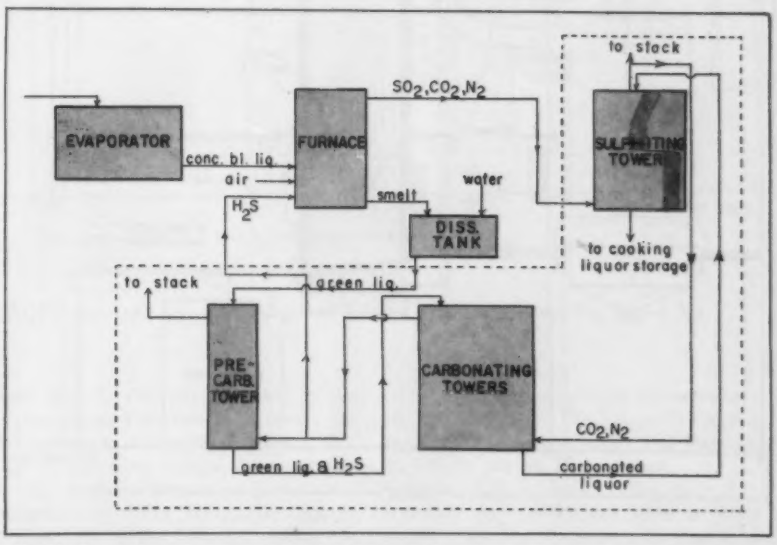

FIGURE 2—Mead Process. Simplified Flow Sheet.

TABLE I—MEAD PROCESS—CHEMICALS REACTIONS—CARBONATING TOWERS

$Na_2S \rightleftharpoons 2Na^+ + S^=$	(1)
$Na_2CO_3 \rightleftharpoons 2Na^+ + CO_3^=$	(2)
$S^= + H_2O \rightleftharpoons OH^- + HS^-$	(3)
$2HS^- \rightleftharpoons S^= + H_2S$ (aq.)	(4)
H_2S (aq.) $\rightleftharpoons H_2S$ (g)	(5)
$CO_3^= + H_2O + OH^+ + HCO_3^-$	(6)
$2HCO_3^- \rightleftharpoons CO_3^= + H_2CO_3$ (aq.)	(7)
H_2CO_3 (aq.) $\rightleftharpoons H_2O + CO_2$ (aq.)	(8)
CO_2 (aq.) $\rightleftharpoons CO_2$ (gas)	(9)

In the carbonating towers the partial pressure of CO_2 over the liquor is increased (9) in the precarbonation tower that of the H_2S is increased (5). This results in the reactions being forced to the left and gas being absorbed.

will require extrapolation to larger sizes for a thorough study of the economics involved.

The processes may appear strange, tricky, and complicated, especially where complete recovery of the chemical is attempted. However, when one considers the similar kraft recovery system with slaker, causticizer, clarifiers, thickeners, mud washer and kiln, it is strangeness rather than equipment complexity which causes a feeling of uneasiness. If the subject were kraft recovery, it would be so familar and its operating principles so accepted that there would be no resistance to the process and one could proceed to the details directly. This does not imply that NSSC recovery does not have its own peculiar problems, only that, process-wise, it is neither better nor worse than the familar kraft system.

Each of these processes is similar to kraft up to the dissolving tank. The green liquors are similar except that the NSSC liquor is much higher in sulphidity. In the kraft process the green liquor sulphide is retained for cooking liquor in the sulphide state and the sodium carbonate is converted to hydroxide. In the NSSC recovery system, it is necessary to convert this green liquor sulphide to sulphite, with no change in the carbonate position.

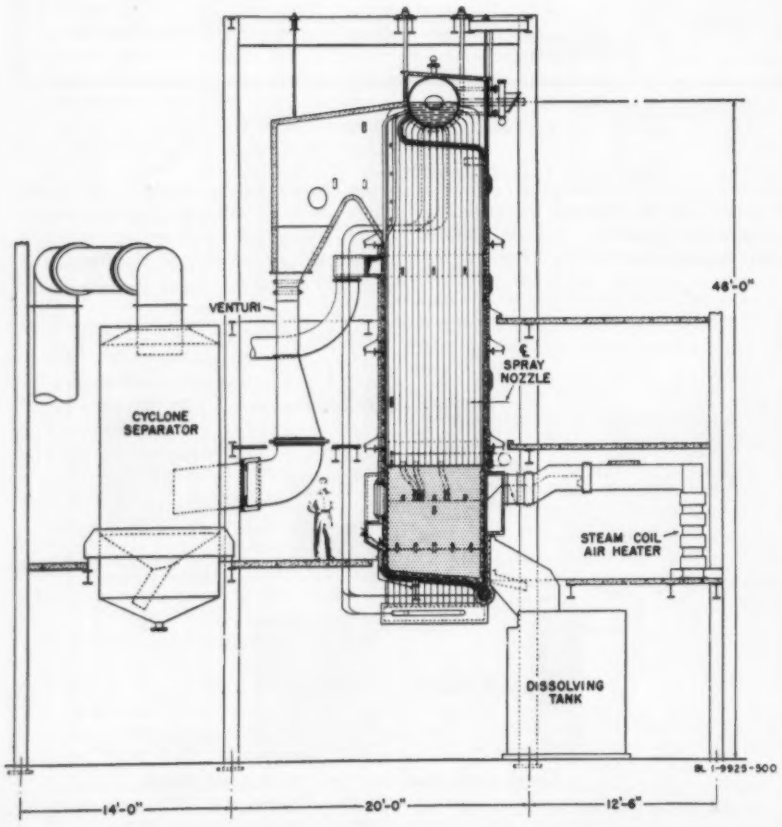

FIGURE 3—30-Ton Recovery Unit at Watervliet Paper Co., Watervliet, Mich.

Three Processes Used

By using the reducing atmosphere in the hearth zone of a kraft type furnace, almost all of the higher valent forms of sulphur are reduced to sulphide. Oxidizing the sulphur neatly back to the +4 valent level while it is combined with the sodium has been claimed in several patents although no application to practice has been published. Two of the processes under consideration separate the sulphur by carbonation of the green liquor, oxidize it to SO_2, and reabsorb the SO_2 in a carbonate solution. The third, or Institute, process, rejects the —2 valent sulphur as H_2S by sulphiting instead of carbonating. If economical, this H_2S may be recovered by methods similar to those used in the gas industry. Otherwise, the sulphide sulphur is thrown away as H_2S and replaced by SO_2 formed from the burning of fresh sulphur. A commercially untried modification of the Institute process sulphites with a bisulphite liquor instead of sulphur burner gas and the resultant H_2S may be returned to the sulphur burner.

Mead Process

The first of the three methods to be discussed is the Mead process *(5)*, developed and patented by the Mead Corporation. Basically the Mead process operates by separating the sulphur from the sodium by carbonation of the green liquor with waste flue gas. The sulphur, driven off as H_2S, can then be oxidized by burning in air either in the furnace or in a special burner, and is then recombined with the sodium by washing the SO_2 containing gases with the sodium carbonate solution formed in the first step. Processes similar in general approach have a considerable history, but this process has several novel features which are what make it feasible. The scrubbing of all the furnace flue gases with a Na_2CO_3 solution gives a clean, SO_2 free, CO_2 rich, gas to use for carbonation, as well as minimizes sulphur losses. The splitting of the gas stream between the precarbonation and carbonation towers provides the maximum concentration of H_2S to the furnace and still does not result in a sulphur loss.

Two mills, one in Michigan and one in Virginia, are using this process. Figure 1 shows the general layout of the larger job, the one at the Mead Corporation plant in Lynchburg, Va. Following through the process marked in Figure 1, the concentrated liquor from the multiple-effect evaporators is evaporated further in the venturi scrubber-evaporator **C** and **D**. This liquor is burned in a kraft type furnace **A**,

which operates with a reducing atmosphere in the "hearth" zone. The molten Na_2S — Na_2CO_3 mixtures flows into a dissolving tank **M**. The green liquor is clarified in **I**, **J** and **K**.

The flue gasses from the furnace pass through the superheater, boiler and economizer for purposes of steam production, and then to the venturi-scrubber **C** where the gas velocity is increased and black liquor is injected into the gas stream. The high gas velocity (approx. 300 fps) atomizes the liquor. This provides a cloud of droplets with a tremendous surface for heat transfer and on which the dust in the flue gas is collected. The liquor is separated from the flue gas in the cyclone separator, **D**, and the clean gas containing N_2, CO_2, O_2 and SO_2 is passed to the sulphiting tower, **E**.

The sulphiting tower makes the cooking liquor by absorption of the SO_2 from the flue gas in a Na_2CO_3 solution. This carbonate solution is obtained from the carbonating towers, **F**, where it is made by carbonation of green liquor with a part of the clean, substantially SO_2 free, flue gas from the sulphiting tower. It is in these carbonation towers that the sulphide in the green liquor is removed as H_2S.

The gases leaving tower **G** contain H_2S and the CO_2 not used in carbonization. The concentration of this H_2S is sufficiently low to present difficulty in combustion. Therefore, the precarbonation tower **H** is a device used to bring about an increase in H_2S concentration. About a third of the gas leaving tower **G** is passed through tower **H**. The high alkalinity of the liquor at this point removes the H_2S from the gas stream, forming NaHS. The gases leaving this tower can be discarded with negligible loss in sulphur, while the H_2S thus absorbed will be rereleased in the carbonation tower. Consequently, there is a very substantial enrichment in H_2S content of that portion of the gases returned to the furnace, insuring satisfactory combustion.

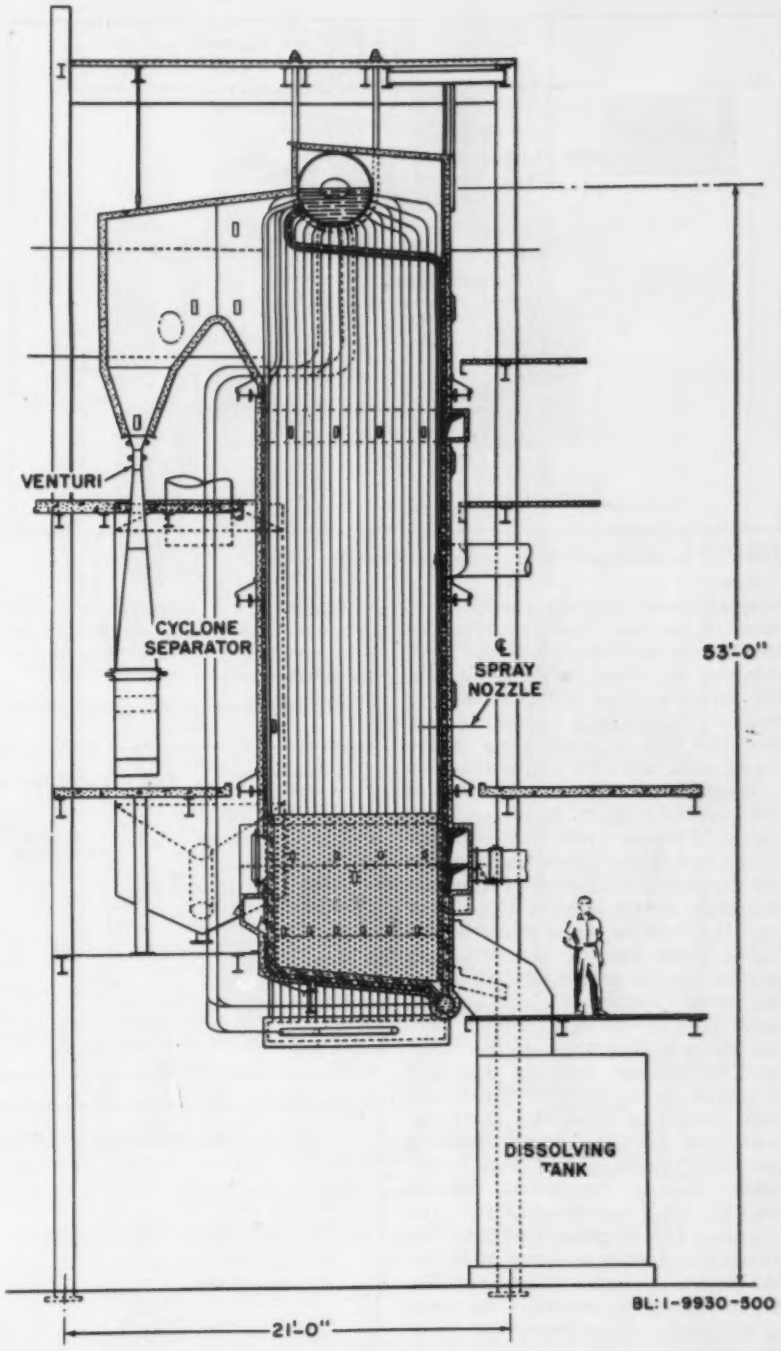

FIGURE 4—A 40-Ton Recovery Unit at National Container, Big Island, Va.

Chemistry of Mead Process

The chemistry involved in the process can best be explained by the use of the flowsheet in Figure 2 and the equations in Table **I** for the reactions involved. According to the law of mass action, an increase in the concentration of one constituent on either side of the equation will shift the equilibrium, driving the reaction in the opposite direction until a new equilibrium is reached. The equations listed describe the system of Na_2S, Na_2CO_3, water, HS_2 and CO_2. In equations **(1)** and **(2)** the Na_2S and Na_2CO_3 ionize. Equations **(3)**, **(4)** and **(5)** show the relationships between the sulphide ion and H_2S gas, while **(6)**, **(7)**, **(8)** and **(9)** refer to the corresponding relationship between the carbonate ion and CO_2 gas.

By maintaining a high concentration of CO_2 in the carbonation tower, this concentration shifts the equilibrium of equation **(9)** to the left, increasing the concentration of dissolved CO_2. This, in turn, shifts the equilibria of equations **(8)**, **(7)** and **(6)** to the left, with the net result that there is a substantial increase in $CO_3=$ ion in the solution.

These $CO_3=$ ions, along with $S=$ ions are in equilibrium with a fixed quantity of Na + cations, as shown in equations **(1)** and **(2)**. As the $CO_3=$

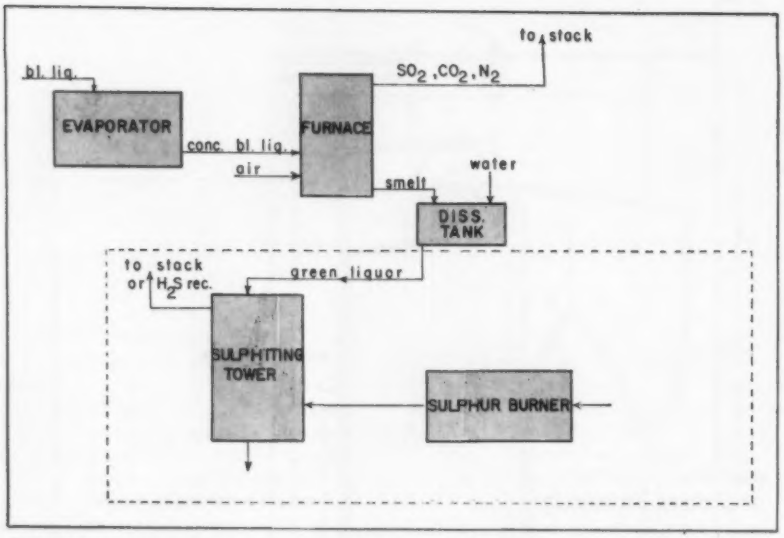

FIGURE 5—Institute Process Simplified Flow Sheet.

anions increase, they will combine with more of the Na+ ions, equations **(1)**, **(3)**, **(4)** and **(5)** will shift to the right, releasing H_2S. Since, in the gas stream, the partial pressure of H_2S is low and that of CO_2 is high, conditions are such that H_2S will be stripped out of the liquid phase and CO_2 will be absorbed.

It can be seen, by an examination of the counter-current flow conditions shown in Figure 2, that the conditions in the carbonation tower are such that the descending solution will become increasingly concentrated in $CO_3^=$ ions and H_2S will be stripped out of the liquid phase into the ascending gas stream. The gas entering the bottom of the tower contains 17 per cent or more of CO_2, no SO_2, and no H_2S. As the gas rises through the tower its CO_2 content decreases and H_2S is picked up, so that the existing gas may contain as much H_2S as 10 per cent, with the CO_2 content about 10 per cent. The descending green liquor, upon entering the tower, contains Na_2CO_3, Na_2S and dissolved H_2S. The dissolved H_2S is stripped off first, followed by a further evolution of H_2S as the Na_2S is converted to carbonate. The liquor leaving the bottom of the tower is practically all carbonate and bicarbonate.

The precarbonation tower functions in a similar manner. The entering liquor has a high alkalinity, being made up of Na_2S and Na_2CO_3. The gas entering the tower is now high in H_2S, which drives equations **(5)** and **(4)** to the left, producing HS— ions. The combination of equations **(1)**, **(3)** and **(4)** leads to the conversion of Na_2S into NaHS. After all of the Na_2S is converted to NaHS there is practically no further absorption of H_2S. To insure complete scrutizing of H_2S, only a portion of the total gas from the carbonation tower is passed through the precarbonation tower and exhausted to the atmosphere.

The sulphiting tower accomplishes the absorption of SO_2 and the desorption of CO_2 in the cooking liquor. Figure 2 shows that the gases from the furnace, after being cooled in the venturi scrubber, enter the bottom of this tower. They contain about 17 per cent CO_2 and 2.0 to 2.5 per cent. The liquor entering the top of the tower from the carbonating tower contains Na_2CO_3 and $NaHCO_3$, with no sulphide. The SO_2 will react with the acid carbonate to form Na_2SO_3. Liquor leaving this tower will contain Na_2CO_3, $NaHCO_3$ and Na_2SO_3. The ratio of bicarbonate to carbonate will be determined primarily by how closely the liquor in the carbonation tower is allowed to approach equilibrium with the CO_2 in the gas stream. In any event, the SO_2 is completely scrubbed from the gas stream. At the top of this tower, all gas that is not needed later in the carbonation and precarbonation towers is vented through a stock damper.

As more information is accumulated, the size of the absorption equipment required should decrease. In these first installations, allowances had to be made for uncertainties in the tower design since data on the system CO_2, H_2S,

TABLE II—DESIGN DATA MEAD PROCESS

	Watervliet Paper Co. Watervliet, Mich.	Mead Corp. Lynchburg, Va.
Pulp Production, T/day	50	250
Black Liquor Solids, lb/day	75,000-138,000	397,000
Steam Flow, lb/hr	4,400-6,500	38,000
% Solids to Furnace	65.0	65.0
% Solids to Direct Contact Evaporator	32	43.5
Steam Pressure p.s.i.g.	120	600*
Steam Temp. °F	350	750*
Exit Gas Temp. from V-S °F	200	200

* Future condition. Unit is starting up at 290 p.s.i.g. and 590°F.

TABLE III—CHEMICAL REACTIONS INSTITUTE PROCESS

Na_2S —Na_2CO_3 Solution (Green Liquor)

$Na_2S \rightleftharpoons 2Na^+ + S^=$	(1)
$Na_2CO_3 \rightleftharpoons 2Na^+ + CO_3^=$	(2)
$S^= + H_2O \rightleftharpoons OH^- + HS^-$	(3)
$2HS^- \rightleftharpoons S^= + H_2S$ (aq.)	(4)
H_2S (aq.) $\rightleftharpoons H_2S$ (g)	(5)
$CO_3^= + H_2O \rightleftharpoons OH^- + HCO_3^-$	(6)
$2HCO_3 \rightleftharpoons CO_3^= + H_2CO_3$ (aq.)	(7)
H_2CO_3 (aq.) $\rightleftharpoons H_2O + CO_2$	(8)

NOTES: In dilute solution **(1)** and **(2)** are essentially complete. This solution is quite basic as can be seen from the OH^- ion formed **(3)**, **(6)**.

Adding SO_2

SO_2 (g) $+ H_2O \rightleftharpoons H_2SO_3$ (aq.)	(9)
H_2SO_3 (aq.) $\rightleftharpoons H^+ + HSO_3$	(10)
$HSO_3^- \rightleftharpoons H^+ + SO_3$	(11)
$H^+ + OH^- \rightleftharpoons H_2O$	(12)

The acid formed here will neutralize the green liquor if SO_2 is added directly to it.

At high pH

$2Na_2S + SO_2 + H_2O \rightleftharpoons Na_2SO_3 + 2NaHS$	(13)

Below about pH 11.0 the following reactions begin

$2NaHS + SO_2 + H_2O \rightleftharpoons Na_2SO_3 + 2H_2S$	(14)
$2Na_2CO_3 + SO_2 + H_2O \rightleftharpoons Na_2SO_3 + 2NaHCO_3$	(15)

A possible mechanism for thiosulfate formation is

$2H_2S + SO_2 \rightleftharpoons 3S + 2H_2O$	(16)
$S + Na_2SO_3 \rightleftharpoons Na_2S_2O_3$	(17)

Na_2S, Na_2CO_3, $NaHCO_3$ were not available. In addition, the pilot plant from which the design data were taken was so overdesigned that liquor and gas mass flows were much below the commercial range.

Predicted results for the process are given in Table II. The Watervliet job is operating, but the manufacturer wishes to have a more complete performance picture before releasing the measured performance. At the present time the information given out is that, although there have been problems with furnace stability, plugging of the flame arrestor in the H_2S duct, and a questionable performance by the booster fan in the carbonating system, the unit is performing satisfactorily at this time. The process has produced no complications. All the troubles have been details which were not completely worked out.

Figures 3 and 4 show sectional views of the two Mead process installations. The Lynchburg job has a furnace whose size is equivalent to a kraft unit of slightly over 100 tons/day. In the other units being considered here the size was so small that boiler surface was uneconomical. A quantity of steam is generated in the water walls of the furnace, but more than half the available heat is passed to the direct contact evaporator, which for this service is a venturi-scrubber. These small furnaces, referred to as "smelters" by the manufacturer, represent a considerable saving in capital investment at the expense of the multiple effect ratio. One beneficial side effect is the reduction in multiple effect evaporator load by approximately 40 per cent in the concentrated or difficult end of the working range. Assuming 15 per cent solids in the liquor from the washers, the multiple effect evaporators used with a smelter must raise the solids only to about 25-30 per cent; the venturi-scrubber, operating on high temperature flue gas, does the remainder of the concentrating up to the desired level for burning in the neighborhood of 50-65 per cent solids. Of the original 5 2/3 pounds of water per pound of solids from the washers, 2½-3 pounds are removed by the multiple effect evaporators and 1¾-2 by the venturi-scrubber.

The small size of the furnace gives a larger than normal area to volume ratio and results in a cooler furnace and more difficult operation. Since the heating value of NSSC liquor is generally lower than for kraft, all these factors work in the wrong direction. Babcock and Wilcox experts operated a pilot unit on NSSC liquor considerably smaller than these and it required a great deal of skill. The small units will operate without auxiliary fuel but will require more attention and a much longer feeling-out period on start-up than larger installations.

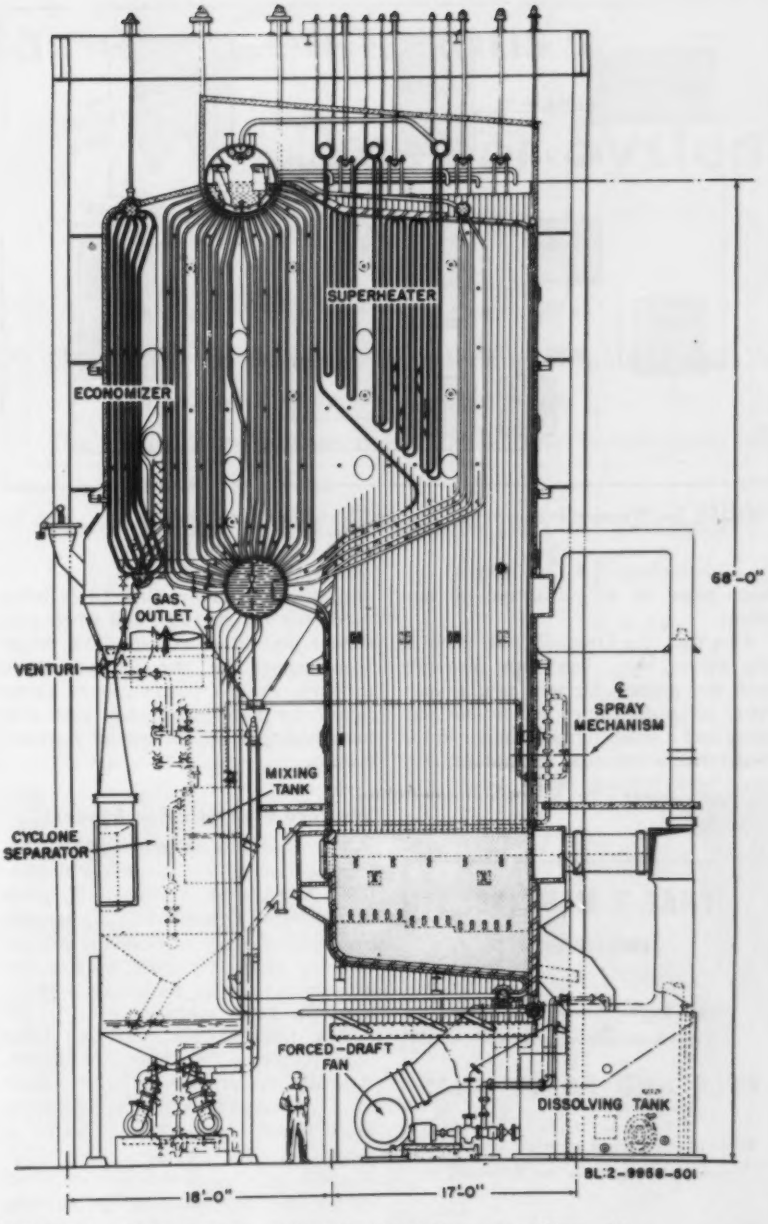

FIGURE 6—108 Ton Recovery Unit for Mead Corp., Lynchburg, Va.

Institute Process

The next process to be discussed is one involving direct sulphitation of the green liquor, Figure 5. This process has been developed by the Institute of Paper Chemistry. It is a less complex system in that no sulphur recovery is attempted. A complete discussion of the chemistry involved. (Table III), has been presented by R. P. Whitney, S. T. Han and J. L. Davis *(7)*. The drawback to the process lies in the production of some $Na_2S_2O_3$ which, although inert in the NSSC cook, results in higher overall chemical losses and possible difficulties with the bleaching. The sulphur losses are complete unless the H_2S formed is recovered. Since it is mixed with the nitrogen from the burning of sulphur in air and since this inert gas cannot be retained in the system, some additional equipment, perhaps similar to that used in the natural gas industry, must be supplied. With this additional equipment the process

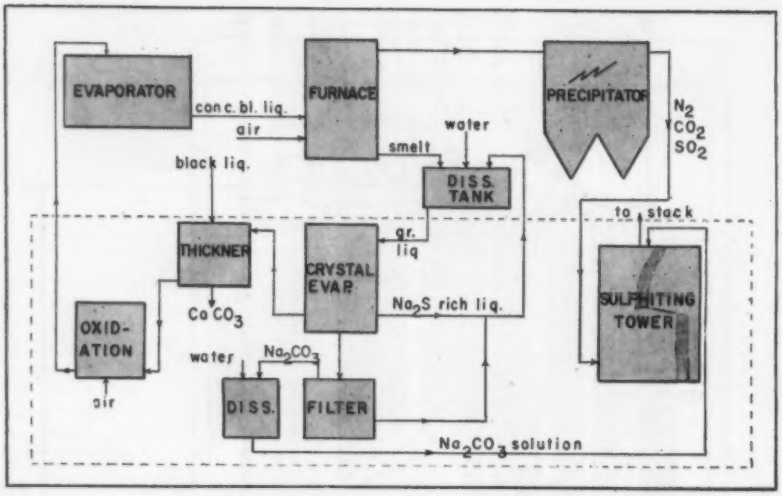

FIGURE 7—Western Precipitation Process. Simplified Dow Sheet.

loses some of its advantage of simplicity.

One mill, the Owens-Illinois plant at Big Island, Va., has been operating with this process for well over a year. After some difficulties due to low heat value and a small furnace similar to the Watervliet installation (Figure 3), they have been burning NSSC liquor successfully. Additional fuel oil is being used only for start-ups and when conditions get out of control. The design specifications for this job are given in Table IV. As far as can be ascertained, no performance data have ever been collected on the overall recovery system.

Western Precipitation Process

The third process under trial is that being promoted by Western Precipitation. A paper by W. Boyer *(9)*, given at the New Orleans TAPPI meeting over a year ago, describes the process in some detail. The pilot work at the Tomahawk mill of National Container has also been published *(8)*. At the present time another small unit using this technique is being developed. Basically, the process uses the furnace as a carbonator and, by increasing green liquor concentration, Na_2CO_3 is salted out. The sulphide rich mother liquor is recycled to the multiple effect evaporators and added to the entering black liquor. The sulphide is stabilized by oxidation to prevent losses through evolution of H_2S during evaporation and subsequent venting. A simplified flow sheet based on the published information is shown in Figure 7. By scrubbing the flue gases from the recovery unit with the carbonate solution, this process could achieve high recovery efficiencies. It is no simpler than the other processes, with its oxidation and crystallization replacing gas absorption and stripping, but it has some advantages. One simplification is that no H_2S has to be piped from a tower to a burner.

All of the three processes under discussion have gone beyond the pilot plant stage, although in most cases there is economic uncertainty since the first commercial units are really too small for accurate evaluation. They will provide operating information, but the question of which is the most economical method for recovering chemical value and avoiding stream polution in the NSSC industry still is not positively answered. Although these first installations are too small for complete economic evalution, and other processes operating on entirely different principles are possible competition and may push all these processes aside, the day of NSSC recovery has arrived. The NSSC mill can operate on a closed basis, saving chemicals and avoid stream pollution. It would be foolhardy to fail to grasp the significance of these developments.

TABLE IV—DESIGN DATA, OWENS-ILLINOIS, BIG ISLAND, VA.

Pulp Production T/day	150-165
Black Liquor Solids lb/day	150,000-165,000
Steam Flow lb/hr	4,250-3,860
% Solids to Furnace	61.5
% Solids to Direct Contact Evaporator	26-25
Steam Pressure p.s.i.g.	185
Steam Temp. °F	382
Exit Gas Temp. from V-S °F	200

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Paper presented at the sixth annual Pulp and Paper Conference, held December 2-3, 1957, at the University of Florida, Gainesville, Fla.

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Gaylord Container's Continuous Digester System

- **The problem: Existing digesters at Bogalusa mill in need of repair or replacement.**
- **The solution: Replacement with new continuous digester system.**
- **The latest report: Many advantages . . . savings . . . better pulp quality . . . ease of operation.**

Installation of a 150-ton per day Pandia continuous digester system at Gaylord Container Corp.'s Bogalusa, La., mill has been effected with interesting results revealed on the basis of six months' performance. The project was part of an extended and seemingly almost continuous upgrading of mill facilities.

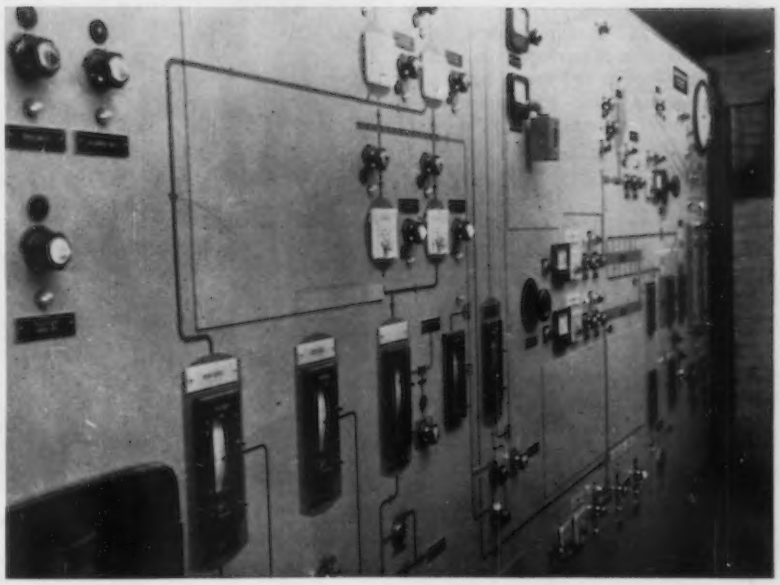
Hardwood Holdings Utilized

Successor to one of the oldest southern paper mills and a pioneer in forest management, the company holds extensive timber lands in Louisiana and Mississippi. These include a substantial acreage of mixed pine and hardwood and also areas of hardwood in lowlands along streams.

Pine land management has proven successful, and company foresters and management have more recently focused attention on the hardwood. To upgrade forests it was necessary to develop mill utilization of hardwood thinnings and cull trees so that they will develop straight healthy stems that in time will yield profitable merchantable timber. These hardwood thinnings and culls have been utilized at Bogalusa in the production of pulp by the neutral sulphite semichemical process.

Rebuild or Replace Old Digesters?

The existing digesters used for semichemical pulping were worn and needed to be replaced. These digesters were crowded with the kraft digesters into an area which left no room for expansion.



GRAPHIC CONTROL PANEL, located in an air conditioned room, makes possible operation of most of the system by one man.

As time passed, the mill was faced with the necessity of continuing production of semichem furnish for 9-point corrugating medium either by installing a new system or rebuilding present facilities. The latter course would have projected the existing pattern with its high labor costs. Although more costly, the new system's life expectancy was calculated to be three times the life of the older type units. It would occupy less mill space, and effect economy in labor. Then, too, the new system could be made entirely of stainless steel or other alloys, contributing to quality of

product. It was thought that wood use would be more economical; better uniformity achieved.

Several years ago Gaylord had modernized its woodyard, providing it with adequate mechanical handling devices, a flume for conveying pulpwood, and double conveyors so as to facilitate use of pine and hardwood, separately, as desired. The woodroom had been reorganized to permit separate chipping and by multiconveyors to pass the chips to separate destinations. Facilities for preparation of cooking liquor were ample, as was refining capacity.

Green Light for New System

The problem evolved into replacement of four digesters and equivalent diffuser capacity. The first task was the planning of a new system to fit in available building space, in this case about 5,000 square feet in ground dimension by a 50-foot height. Key members of Gaylord's staff involved in planning the system included: F. C. Ratliff, process engineer; W. C. Barnwell, assistant chief engineer; and A. E. Reed, technical assistant to pulp mill superintendent. Needless to say, they were backed by the entire organization.

First, was the planned placing of equipment, a tight fit; then development of the control system embracing a graphic bureau. Developed in detail, management gave the green light, and the key group went into consultation with technical experts of Pandia, Foxboro and Bauer. Structural engineering and drawing consultants were J. L. Oder & Associates, Houston, Tex.

Graphic Control Panel Heart of System

Intense study and consultation evolved about the graphic panel control board, which makes possible operation of the system with one man in the instrument room and one on the press washing deck. Brought to perfection, the Gaylord board cost $30,000 more than the conventional design.

The panel has five interlocking sections, one each for the chip storage system, the chip feeding system, continuous digester system, blow tank and primary conveyor system, and the press washing system. If one unit in a section goes down, the entire section closes down, and equipment feeding to it goes down. Sections feeding away from the unit continue to operate. This prevents "pile up."

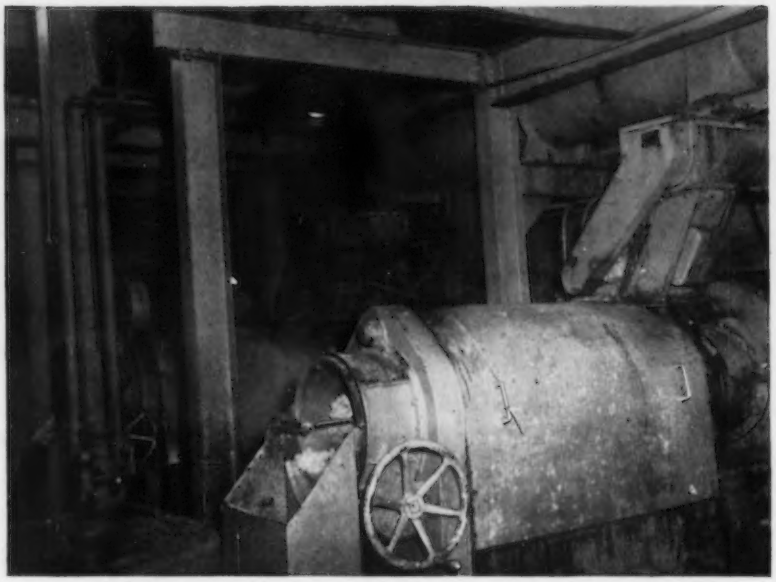
There are no by-passes. If the operation "goes down" repairs must be made immediately. This places emphasis on preventive maintenance. Controllers plug into the panel so a maintenance man may come with a replacement, effect the change, and take the displaced item to the shop for complete going over. Elimination of by-passes saved about $25,000.

The control room is air-conditioned to protect delicate instruments, relays, etc., from dust and humidity, creating perfect operating conditions.

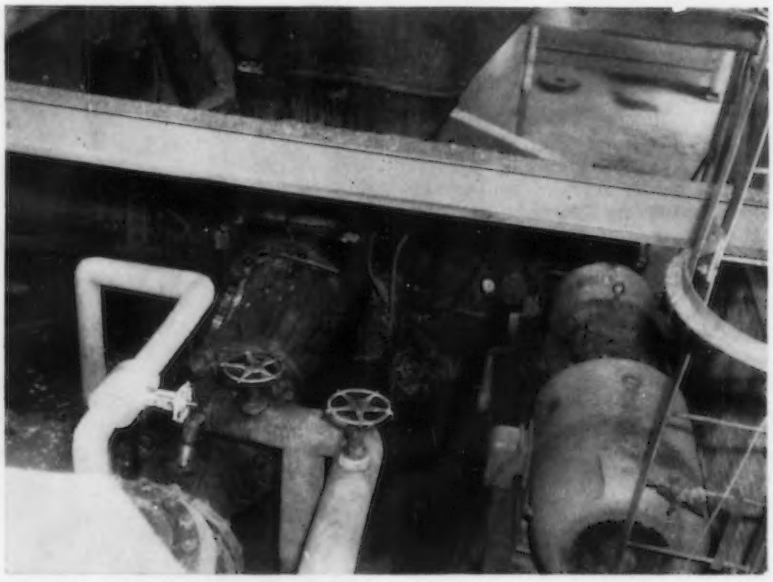
Careful study was made of allowed time in functioning, both of the interlock system and time lag in function. For instance, if a motor overloads, the light goes on and the bell rings. The operator knows just how much time he has to do "something" to prevent the motor from kicking out. Of course there are time constants on all instruments.

New Crews Trained

Being so divergent from the batch system, it was decided to employ an



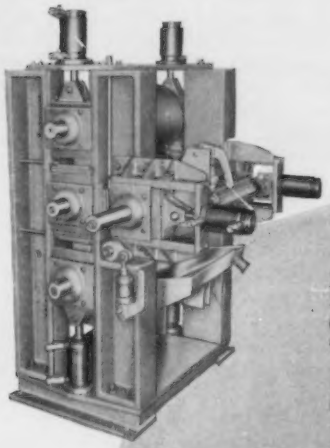
PRESSAFINERS, arranged in two stages, fiberize chips and remove liquor to be used again in the process.



SCREW FEEDER charges chips to the impregnation section of the two-tube, 42-inch by 40-feet Pandia digester.

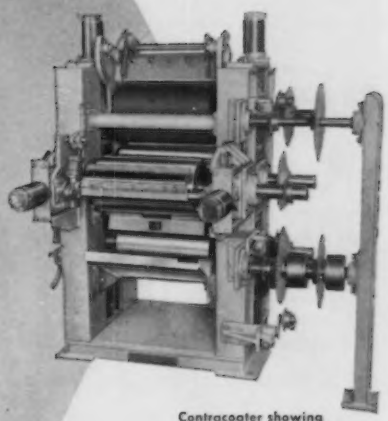
You Can Do All These Jobs On a Black-Clawson Dilts Universal Lab Coater

The Dilts Contracoater®

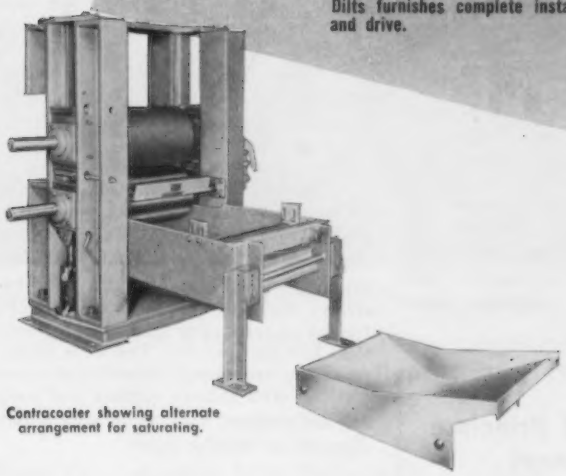


Machine Set-Up	Typical Coating Applied
2 Roll Squeeze Coating	Waxing, Emulsion
3 Roll Squeeze Coating	Waxing, Emulsion
Gravure Coating-Offset	Lacquer, adhesives
Gravure Coating-Direct	Lacquer, adhesives, coloring
Dip and Squeeze Coating or Saturating	Resins
Kiss Coating with Metering Bar	Latex, carbon
3 or 4 Roll Reverse Coating	Organisols, plastisols, latices
Air Doctor Coating	Clay coatings
Knife Coating	Fillers, binders

Dilts furnishes complete installation including oven and drive.



Contracoater showing drive and versatile knife coater attachment.



Contracoater showing alternate arrangement for saturating.

Present users of Black-Clawson Universal Coaters include:

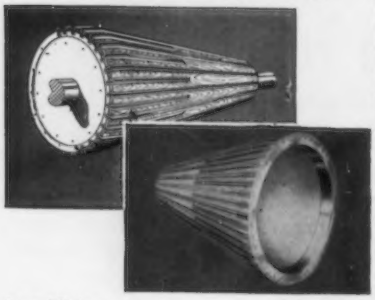
- Minnesota Mining & Manufacturing Co.
- Ozalid, Division of General Aniline & Film Corporation
- Oxford Paper Company
- Institute of Paper Chemistry

THE BLACK-CLAWSON COMPANY
DILTS DIVISION, FULTON, NEW YORK

Executive Offices	250 PARK AVE., NEW YORK, N. Y.
Pulp Mill Equipment	PANDIA DIVISION, Hamilton, Ohio
Stock Preparation Equipment	SHARTLE DIVISION, Middletown, Ohio
Paper and Board Machines	PAPER MACHINE DIVISION, Watertown, N. Y.
Canadian Sales and Manufacture	BLACK-CLAWSON (CANADA) LTD., Montreal, P.Q., Canada
British-European Sales and Manufacture	BLACK-CLAWSON INTERNATIONAL LTD., London, England
District Sales Offices	Atlanta, Ga. • Downingtown, Pa. • Appleton, Wisc. • Portland, Ore.

REVOLUTIONARY ADVANCE

In Jordan Plug Design



In addition to the strongest and most adaptable solid plug ever developed, Adapta-Plug is available in sleeve form for easy, economical conversion of old worn plugs.

E.D. Jones Adapta-Plug

Completely bandless, easily stripped and filled. Inverted-wedge-type slots hold bars firmly in place, eliminate hazards of slot wear and corrosion. Any desired edge available. Write for Bulletin EDJ-1094.

Complete ONE-PIECE assembly to fit shell of any Jordan

E.D. Jones FULBAR SHELL FILLINGS

Ideal filling for any Jordan, new or old, of any make. No keys or wedges needed. Easy to grind in. Many other advantages. Write for Bulletin EDJ-1094.

E. D. JONES & SONS COMPANY

Pittsfield, Massachusetts

Builders of Quality Stock Preparation Machinery

In Canada: The Alexander Fleck, Ltd., Ottawa

entirely new crew to be trained in operation of the continuous digester system. An operating manual was prepared, with pictures of component parts. After the crews had an opportunity to study this, the workings of the system were explained by mill staff and equipment manufacturer engineers. Then the panel was disconnected, and, following the manual and illustrations on the face of the panel identifying controls with operating parts, the process engineering section conducted a number of "dry runs" for starting up and shutting down. When the crews had become proficient, the system was put into production and incorporated into the direct supervision of the pulp mill superintendent.

Dry runs led to minor changes to increase efficiency, as did experience gained during the early operating period. Installation of a tramp iron magnet was one change. Its effectiveness terminated a procession of such items as large nuts, washers, pieces of iron, short stretches of barbed wire enveloped by a tree on the line fence, and a 6-inch long by ¾-inch stainless steel bolt from the conveyor, sheared in two and well mauled. The magnet, of course, could not catch a piece of belting that caused a flurry in its removal.

Major Equipment

As designed, the installation called for two 11,000-cubic-foot chip silos (each to provide about 10 hours' run) with conveyors. A two-tube, 42-inch by 40-foot Pandia digester system with screw feeder tubes and continuous discharge, the top to be the impregnator tube, together with live bottom blow tank with circulating conveyor system leading to the press system, supplies pulp for either No. 4 or No. 6 machines. Four Bauer Pressafiners, arranged in two stages, primary and secondary, fiberize the chips and remove liquor to be used again in the process.

In arrangement of the component parts, the Gaylord installation does not deviate from the conventional, i.e.: supply to chip bins (either may be drawn on), to elevator conveyer from feeder plate, to screw feeder, to digester, live bottom blow tank, to Pressafiners, thence to the orthodox mill refining installation.

Suppliers of Principal Equipment

Digester system, Pandia, Inc., Black-Clawson Co.

Chip silos, Chicago Bridge & Iron Co.

Conveyors, Link-Belt Co.

Pressafiners, Bauer Bros. Co.

Instrumentation, Foxboro Co.

Liquor and water pumps, Peerless Pumps.

Stock pumps, Goulds Pumps, Inc.

Metal detector, R C A.

Switch gear, Westinghouse Electric Corp.

Bin level indicator, Omart.

Screw feeder motor and magnetic drive, General Electric Co.

New System Has Many Advantages

Comparison between the batch system and the continuous digester method has revealed the following advantages for the latter:

- The continuous cooking system produced a 10 per cent higher Concora test.
- Pandia produced pulp, because of freeness, resulted in five to seven per cent greater drying capacity on the machine.
- The pulp yield is 10 per cent higher from the same quantity of wood.
- Closer control over pulp quality is obtained.
- Color of the sheet is much brighter; not an important matter since it goes to Gaylord's adjoining converting plant, but if offered on the market might create customer preference.
- Savings in multiple-stage evaporator capacity have resulted, since black liquor from the primary Pressafiners is strong enough to go direct to the disk evaporator just ahead of the kraft recovery furnace. This has resulted in freeing of evaporator load equal to more than 100 tons per day. The weak liquor from the secondary Pressafiners is refortified with sodium sulphite and soda ash and pumped back to the continuous digester as cooking liquor.

Operation

Pulp goes to the primary washers at from 35 per cent to 40 per cent consistency and is discharged from secondaries at about 60 per cent. Consistency is brought to normal in the stock chest from which pulp is moved to Sprout-Waldron disk refiners, and the jordans ahead of the machine. Existing stock preparation equipment was used in the new system.

In cooking, 7½ per cent sodium sulphite based on bone dry wood is added, with sufficient sodium carbonate to maintain about 8.5 pH blow liquor. Steam pressure is maintained at 150 p.s.i. for 18 minutes retention time. Liquor ratio to wood is 2-to-1.

Now available...

Mount Vernon's RICHLAND 343

Synthetic Reinforced Dryer Felt

SCIENTIFICALLY REINFORCED with synthetic yarn, Richland 343 is a three-ply, double-faced dryer felt especially designed for a wide range of paper making operations. Uniformly constructed for extra-long wear, it is available in widths up to 250". Equally outstanding in their respective applications are these other Mount Vernon dryer felt brands:

From The Columbia Mills Division:

RICHLAND TRIPLEX heavy-duty dryer felts
WOODBERRY 887 asbestos reinforced dryer felts
RAYCORE 33 asbestos reinforced dryer felts
RAYCORE C-171 smooth-faced dryer felts
WOODBERRY C-203 full-faced asbestos dryer felts

From The Lawrence Mills Division:

SIAMESE 135 general purpose duplex dryer felts
TOUR BOSS light weight duplex dryer felts
RAMESES extremely fine-faced dryer felts

PRE-STRETCHED—All Mount Vernon dryer felts are now available pre-stretched and pre-shrunk, with or without clipper seams.

UNIFORMITY Makes The Big Difference In Industrial Fabrics

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PAPER PEOPLE

A. C. Noseworthy

J. C. Sullivan

H. J. Woodmore

A. G. Bouzane

J. D. Buchanan

New Appointments at Anglo-Newfoundland

Anglo-Newfoundland Development Co. Ltd. has announced the following appointments:

A. G. Noseworthy, superintendent of the steam plant, who is retiring this year, becomes steam plant consultant.

J. C. Sullivan, acting superintendent, electrical department, becomes superintendent of the electrical department.

H. J. Woodmore, assistant superintendent of the mechanical department, becomes superintendent of the steam plant, replacing Mr. Noseworthy.

J. D. Buchanan assumes the position of assistant superintendent of the mechanical department, replacing Mr. Woodmore.

A. G. Bouzane, project engineer, becomes assistant groundwood superintendent.

Cooper Succeeds Glynn at Martin

Sidney J. Cooper has recently assumed the position of manager of the Winnipeg plant of Martin Paper Products Ltd. Formerly secretary-treasurer of Martin, and having 27 years' experience with the company, Mr. Cooper succeeds J. E. Glynn who has retired under the provision of the company's pension plan.

Riegel Names Donoghue to Carolina Paperboard

Riegel Paper Corp., has announced that Thomas F. Donoghue, management representative, Sales Division, has been assigned to promotion and sales for Riegel's Carolina Papers.

Mr. Donoghue joined Riegel in 1912 and has been manager of Riegel's Chicago office and, later, manager of Glassine & greaseproof sales.

According to W. J. Garrity, Manager, Carolina Paper Sales, Riegel's new paper machine, Carolina Belle, will be starting production during the second quarter.

H & W Promotions at Mobile

Scott Paper Co., Hollingsworth & Whitney Mobile, Ala. Division has announced the following promotions:

Edward Sheridan, formerly assistant paper mill superintendent, to paper mill superintendent. He joined the company in 1940 as a paper machine tender, and in 1943 was promoted to boss machine tender. In 1948, he was promoted to assistant paper mill superintendent.

Clinton G. Ames Jr., formerly superintendent of utilities, has been promoted to chief engineer. He has held positions of general mill engineer and maintenance manager at Scott's Chester plant, and in 1957 was transferred to the Mobile plant as maintenance manager. Last July he was promoted to manager of utilities. As chief engineer, Mr. Ames will be responsible for engineering maintenance, utilities and construction.

Andrew A. Herndon, previously assistant manager of utilities has been promoted to manager of utilities. He joined Scott's Hollingsworth & Whitney Co., plant in 1940. In 1955 he was promoted to assistant power superintendent.

Moggio Joins Lake States Yeast

William A. Moggio joined the staff of the Lake States Yeast Corp., a subsidiary of Rhinelander Paper Co., as technical assistant to the manager.

Prior to joining the Rhinelander firm, Moggio was with the East Texas Pulp and Paper Co. as chief chemist.

Driscoll Heads Middletown C-C

Donald G. Driscoll, president of the Sorg Paper Co., has been re-elected president of the Middletown, Ohio Chamber of Commerce.

Routing clays the Huber way is fastest

Approximately 1,000 carloads of clay are expedited each month by Huber's Traffic Department to all points of the compass. Our records and our customers' prove that barring Nature's vagaries, *these shipments get to their destinations in record time* via the least expensive routing.

Customers think so highly of our traffic service they often ask for advice for the best routing of other materials to their plants. We're always happy to help. You will find our Traffic Department's knowledge of shipping routes, rates, schedules and availability of box, tank and hopper cars to be without parallel in the industry.

All hopper cars and boxcars for Huber shipments are carefully inspected and cleaned, and all boxcars are paper lined prior to loading. Square, solid unit and palletized loads are rapidly handled and easily stored. Huber shipments arrive in top condition.

Ask for working samples of any of the clays in the complete Huber line.

HUBER **J. M. HUBER CORPORATION** • 100 PARK AVENUE, NEW YORK 17, N. Y.

Mines & Plants: Huber, Ga.; Graniteville & Langley, S.C.

RONNINGEN
COST-CONSCIOUS
FLUID FILTERS

Ronningen Triplex 316 stainless steel filter unit with one filter element removed for inspection.

316 stainless steel thruout, also steel; bronze casting with monel metal fine mesh. For food products, beverages, petroleum, chemicals, water.

All Ronningen filters and strainers are quick-coupling—off—on—in less than a minute. All have heavy reinforced inner. Will withstand 150 PSI dead short without collapse. Continuous operation—no standby needed. 10 to 3000 GPM—pressures to 300 PSI. Liquids, hot or cold.

Write for Bulletin #45570, Dept. J
STRAIN AGAIN WITH RONNINGEN
"Particles large or small, we filter them all"

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P. O Box 774
KALAMAZOO, MICHIGAN

Robert A. Larson

Heads Allied's Process Control Dept

To head its new process control department, Allied Paper Corp. has appointed Robert Larson, present technical superintendent of Allied's King Division in Kalamazoo, Mich.

He joined Allied last October, going from the National Gypsum Co., where he was superintendent of the Anniston, Ala., plant for two years. Previous to that, he was general superintendent of the Kalamazoo mill of the St. Regis Paper Co.

Among other functions, the new process control department will supervise studies of pulp mill production, paper color shading, heat and chemical recovery and other manufacturing methods.

Litten Retires from Monarch Book Mill

Charles Litten, tour superintendent of the Monarch book mill, Kalamazoo, Mich., of Allied Paper Corp., retired January 1 after 44 years service with Allied and its predecessor companies. He had held the supervisor's post since 1953.

He joined the Bardeen Paper Co. at Otsego, Mich. in 1913 at the age of 16 and since then had been associated with the Bardeen, King and Monarch Divisions of Allied.

Stone Container Creates New Posts

Russell R. Kynoch and Martin Baumann have been appointed to the newly created positions of divisional sales managers for Stone Container Corp.'s corrugated box plant at Chicago. Both have held other sales executive positions with the company. They will report to Alvin Blue, director of sales for the Chicago operation.

Recent Changes at Deferiet

Paul L. Suter, assistant to the resident manager for St. Regis at Deferiet, N. Y., has been transferred to the engineering staff at the company's Sartell, Minn. mill. The following appointments have been made in the engineering and maintenance department: H. G. Cuppernall, plant engineer; W. Dickhaut, electrical engineer; and E. Michalik, master mechanic. John E. Cleary of the St. Regis central technical department has been appointed coating mill superintendent at Deferiet and L. W. Lyman has been made assistant coating mill superintendent.

R. P. Fallon, assistant general superintendent of the Deferiet mill has been transferred to the central technical department as technical service engineer and will work out of the company's New York office.

Rhinelander Research Adds to Staff

Ralph C. Kinzel has joined the staff of the research and development department at Rhinelander Paper Co., Rhinelander, Wis.

CPPA Appoints Statistician

Ian B. Chenoweth has been appointed statistician of the Canadian Pulp and Paper Assn. He will direct statistical services and assume other responsibilities within the association.

OBITUARIES

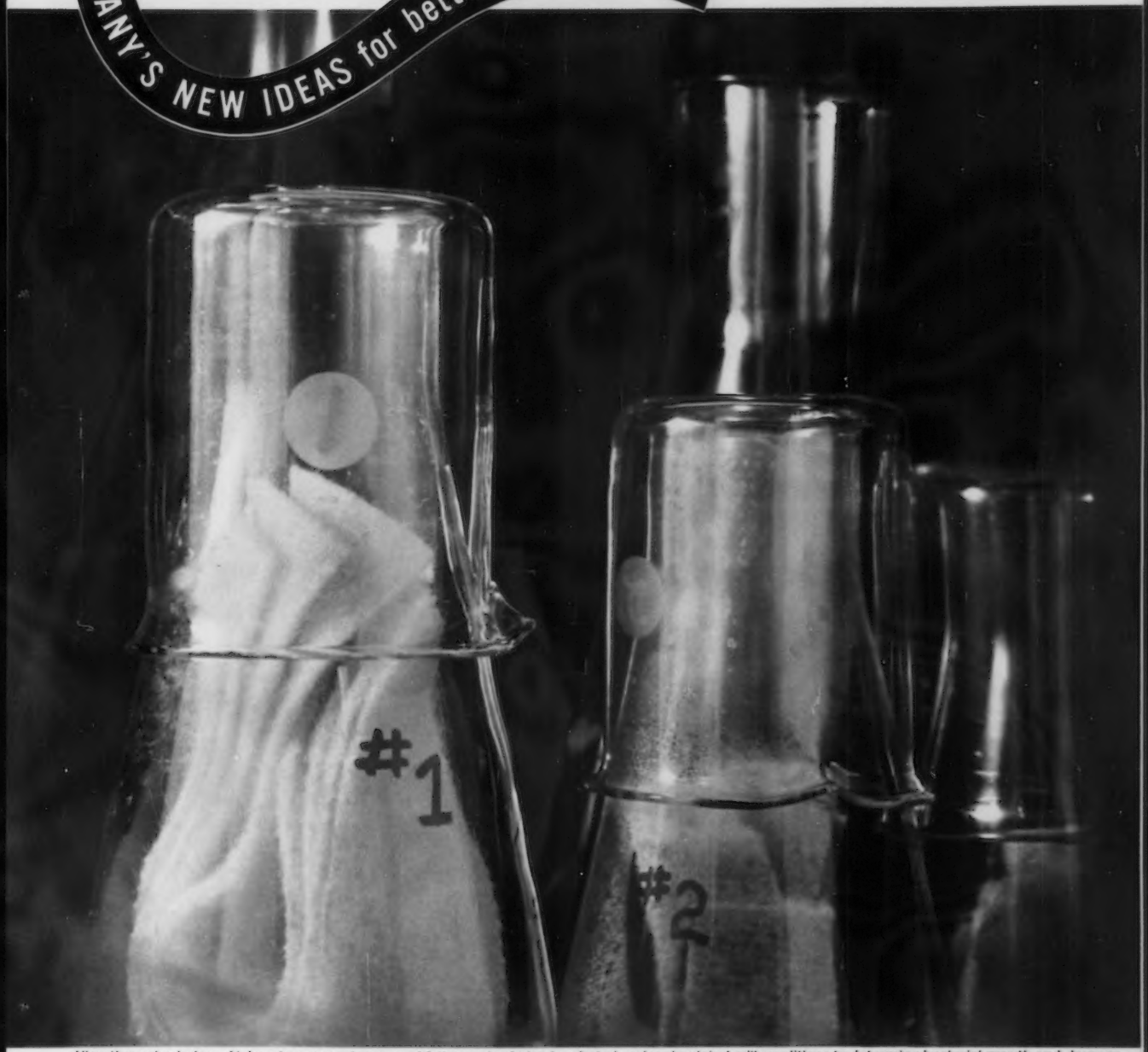
Bart J. O'Hearn, western district sales manager of Union Bag-Camp Paper Corp.'s multiwall bag division, died of a heart attack January 22 in Denver, Col.

Dr. Ralph T. Nazzaro, vice-president in charge of research and development at Westfield River Paper Co., Inc., Springfield, Mass. died suddenly January 21 of a heart attack while attending a convention in Hollywood, Fla.

Foskett H. Godfrey, sales manager of A. E. Broughton & Co., Glens Falls, N. Y., died January 14.

Roy Gordon Elliott, 58, president of Gibson Art Co., Cincinnati, Ohio, and a former vice president of Chatfield Paper Corp., died of a heart attack in his home on January 12.

ALBANY'S NEW IDEAS for better papermaking



View through window of laboratory oven shows used felt samples being incubated under simulated mill conditions to determine bacterial growth and damage.

HOW TO USE LABORATORY SERVICE

Every year, hundreds of paper mills call on Albany Felt's Customer Service Laboratory for assistance in solving problems concerning felt operation. These concern such items as injurious bacterial growth, abnormal wear, alkaline or chemical damage, excessive filling, and many others. The Albany Felt Laboratory, which is the most complete and modern in the field, employs every known chemical and mechanical testing device to isolate the cause of these difficulties and provides suggestions for their correction. In many cases, these have been invaluable aids for improving felt performance. This service, which Albany Felt offers as another contribution towards the common objective of improved papermaking, is available to all mills without obligation. Our goal, as always, is to help you produce more saleable tons per day!

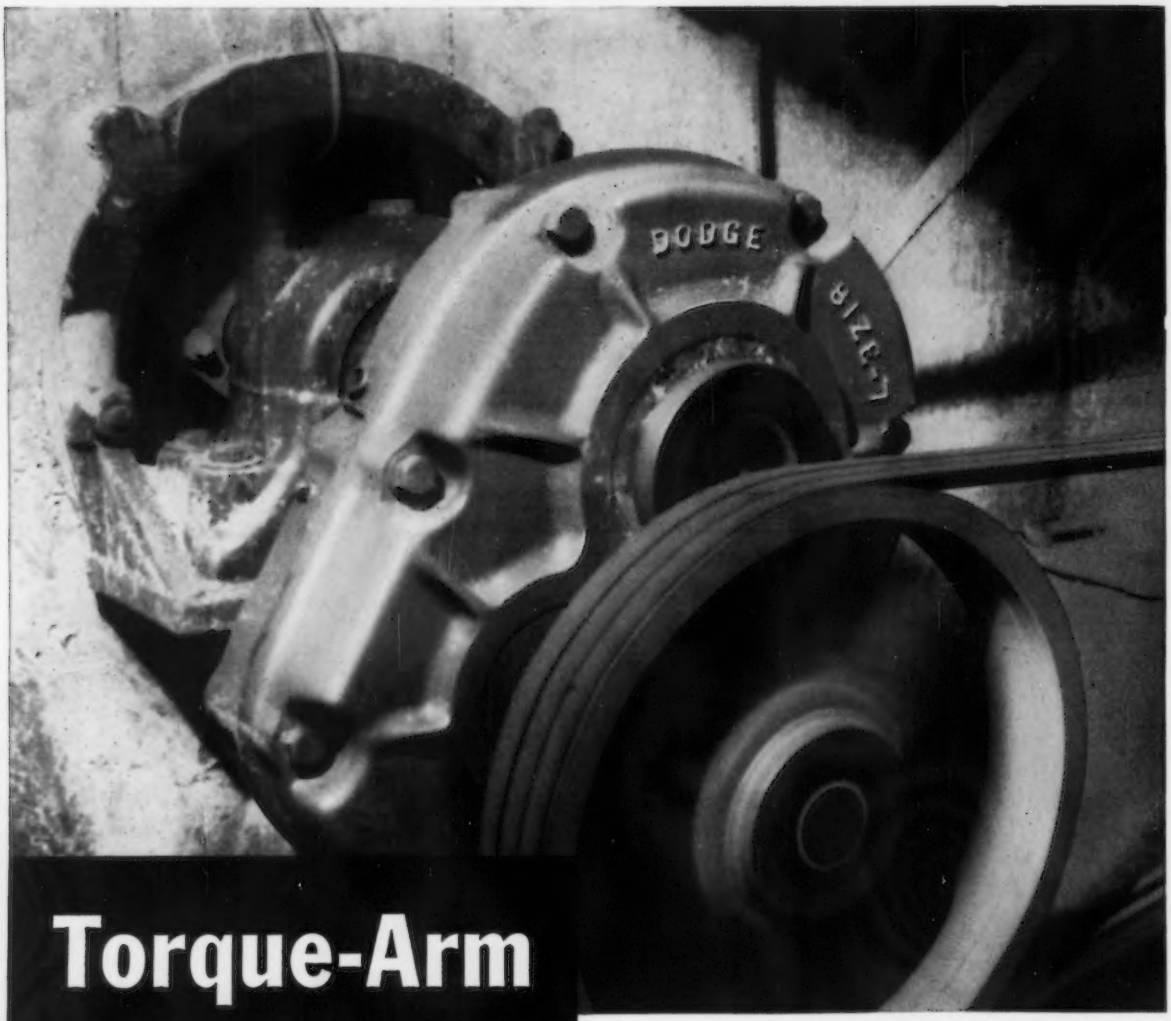
AF

ALBANY FELT COMPANY

MAIN OFFICE & PLANT, ALBANY, N.Y.

OTHER PLANTS: HOOSICK FALLS, N.Y.; N. MONMOUTH, ME.; ST. STEPHEN, S.C.; COWANSVILLE, P.Q.

"THE WORLD'S LARGEST MANUFACTURER OF PAPER MACHINE FELTS"



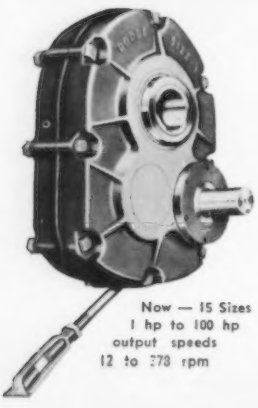
Torque-Arm

SHAFT-MOUNTED SPEED REDUCERS

Size 7 Torque-Arm Speed Reducer on agitator in paper mill

Save Up to 1/3 in Installation

—Deliver 97% Efficiency!



Now — 15 Sizes
1 hp to 100 hp
output speeds
12 to 278 rpm

Easy to install! Mounted directly on the driven shaft. Locked at both ends. Dodge Torque-Arm Speed Reducer requires no foundation, no flexible coupling, no sliding base, and there's no lining-up problem. Amazing economy is matched by efficiency in operation—up to 97%.

Unit is driven through V-belt drive. Stock Taper-Lock Sheaves prescribed for each job permit speed ratios required. Tri-Matic Overload Release and backstop available, if desired. Dodge Torque-Arm is America's most complete line of shaft-mounted Speed Reducers. Ask your Dodge Distributor—or write us.

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DODGE MANUFACTURING CORPORATION
2900 Union Street, Mishawaka, Indiana

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new methods. Look for his name under "Power Transmission Machinery" in the yellow pages of your phone book—or write us.

DODGE
of Mishawaka, Ind.

NEWS OF SUPPLIERS

C. H. Smith

A. M. Thomas

Goodyear Tire & Rubber Co., has transferred C. H. Smith from the Philadelphia to Minneapolis field office of its Chemical Division. As a special representative, he will provide sales and technical service for all products marketed by the Goodyear Chemical Division. These include high polymer rubbers, resins and latices.

Pusey and Jones Corp., Wilmington, Del., has named Albert M. Thomas administrative vice president, and Martin W. Schultz vice president in charge of manufacturing. John W. Holybaba was named general sales manager of the paper machinery division.

W. A. Moore

Corn Products Sales Co., has named Walter A. Moore director of marketing. Richard J. Staib has been appointed to succeed Mr. Moore as director of grocery products sales.

In the newly created post, Mr. Moore will direct and coordinate the planning and programming of advertising and sales functions for both industrial and grocery product sales.

New Jersey Zinc Co. has announced that the Bulkley Dunton organization, of New York City, will distribute its Horse Head titanium dioxides to the paper industry. The Horse Head line comprises a complete range of both anatase and rutile titanium dioxides produced at Gloucester City, N. J.

Why did Scott Paper Co.'s West Coast Plant choose FLOORMOBILE?

When your Converting Room covers a quarter of a million square feet of floor area, you have to pay for a lot of manhours if floors are swept by hand. In fact, the annual cost of broom sweeping this much real estate could easily justify investment in one or more of the most costly types of cleaning apparatus made. . . But, Scott chose FLOORMOBILE.

There is a good reason for this choice. FLOORMOBILE is the only floor cleaning machine that cleans large floor areas at practical speeds, *entirely by suction.* This means that floor cleaning is DUSTLESS! Quality Control, an important factor in the Paper Industry, is simplified. Off-the-floor and overhead surfaces remain cleaner, longer. General maintenance costs and fire hazards are reduced.

Further, you can have this dust-free cleaning without sacrifice of valuable time and manhour savings. Scott cut cleaning time in half. FLOORMOBILE cleans the largest possible portion of the total sweepable area, for unlike conventional power sweepers, FLOORMOBILE cleans in forward or backward motion. This enables it to clean right up to the base of walls, floor-mounted machinery and in corners no other machine can touch.

Here are some of the important features of dust-free suction cleaning with FLOORMOBILE

FLOORMOBILE has no dust-raising brushes. It cleans by suction power alone. This lifts dust and paper lint from cracks and joints in the floor surface that brushes cannot get. It handles scrap, litter and waste as easily as dust at cleaning speeds up to 20,000 square feet an hour.

If you're still using brooms in any part of your plant area, it will surely pay you to find out how you can have a cleaner plant with substantial time savings when you convert to suction cleaning with FLOORMOBILE.

Write for case history #571, today.

Handling Devices Company, Inc.
432 Pearl Street • Brookline 47, Massachusetts

M. MacLeod

R. L. Nagle

Stowe-Woodward Inc. has appointed Malcolm MacLeod of Westwood, Mass., to the position of technical service representative.

A. E. Staley Manufacturing Co., Decatur, Ill. has appointed Richard L. Nagle to the newly-created position of industrial marketing manager. The new department will develop marketing programs and sales plans for the industrial products sales department.

Jefferson Chemical Co. Inc., Houston Texas, has created two product manager posts. Named to these posts were Joseph K. Goerner as manager, specialty products, and Ben C. Hayton as manager, glycol products. Both men will report to D. L. Griswold, general manager of the company's marketing department.

Albany Felt VP Celebrates

Wayne Davis, left, vice president felt sales, Albany Felt Co., receives traveling bag and matching tie case presented by John C. Standish, president, during informal ceremonies on January 17 celebrating Mr. Davis' 40th anniversary with the firm.

Pittsburgh Coke & Chemical Co., has added Edgar I. Crowley and John R. Weinert to its research and development department.

Mr. Crowley joins the department's engineering development section as a senior chemical engineer; while Mr. Weinert will be a senior chemist in the protective coatings section.

Diamond Alkali Co.'s silicate, detergent, calcium division at Painesville, Ohio, has appointed Chester D. Rudolf, group leader of the division's research and development activities for the past three and a half years, general superintendent of the division, and George V. Olle, since 1949 assistant superintendent of the pure calcium products plant, as superintendent, succeeding Raymond R. McClure, a veteran of 29 years' service with Diamond in the calcium carbonate field, who recently retired.

Shell Chemical Corp. has begun shipping hydrogen peroxide in tank car quantities from its new plant at Norco, La. The peroxide, made by a new organic process, is an addition to products the company has supplied to the pulp and paper industries. These include ammonia, glycerine and resins.

Shell expects hydrogen peroxide to find wide application in the mechanochemical pulp bleaching field. It is already widely used in groundwood and chemical pulp bleaching.

Alvin H. Johnson & Co.

INCORPORATED

Consulting and Designing Paper Mill Engineers

415 LEXINGTON AVENUE NEW YORK 17, N. Y.

PAPER MILL DESIGN PROCESS ENGINEERING POWER PLANTS

STRUCTURAL AND ARCHITECTURAL DESIGN

REPORTS APPRAISALS ESTIMATES AND SURVEYS

No SEPARATE COUNTERBALANCE *is* REQUIRED

PATENT PENDING

— for this "MONO-VANE" SINGLE PASSAGE IMPELLER which may be trimmed to suit other heads and capacities.

Handles solids, passing up to 3" diameter spheres

•

Trouble-Free Performance — Convenience and Lasting Economy

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Discharge may be turned to any position — accessible for cleaning

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Smooth, Quiet Operation

AURORA NON-CLOG HORIZONTAL & VERTICAL MONO-VANE SINGLE PASSAGE IMPELLER PUMPS

A MAJOR ADVANCE

These pumps represent a major advance in the techniques of non-clog pumping. Available in horizontal and vertical types in sizes up 5" suction.

We invite you to acquaint yourself with this notable non-clog Aurora line. Ask for Bulletin 121-MV.

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA Always PUMPS

AURORA PUMP DIVISION
THE NEW YORK AIR BRAKE COMPANY

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AMES

have hardened and burnished pivots for higher sensitivity . . . lower friction

Because metal pivots are stronger than jeweled pivots, Ames has devised a way of hardening and burnishing them to match the sensitivity of jeweled types. The result is a dial indicator that is unsurpassed for accuracy and strength. And it costs *less* than jeweled types. This "funtional" approach is just one more reason why Ames Dial Indicators are so often specified as "preferred". Write today for complete information.

Representatives in principal cities

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55 Ames Street, Waltham 54, Mass.

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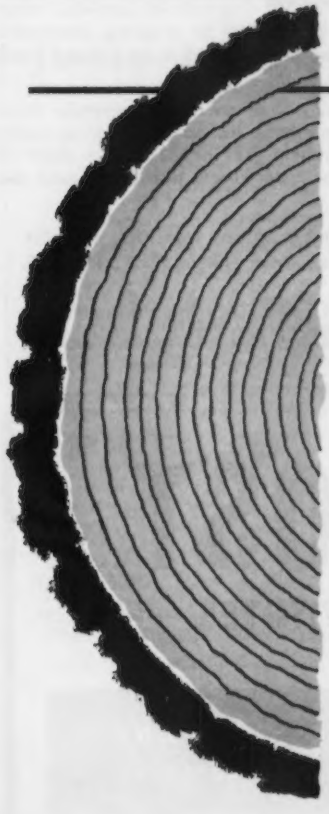

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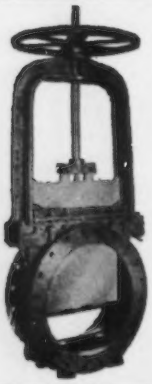

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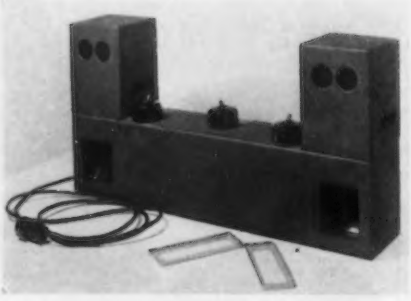

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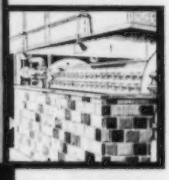

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While we strive for accuracy in preparing the above index which is purely a service to our readers, we cannot be responsible for errors.

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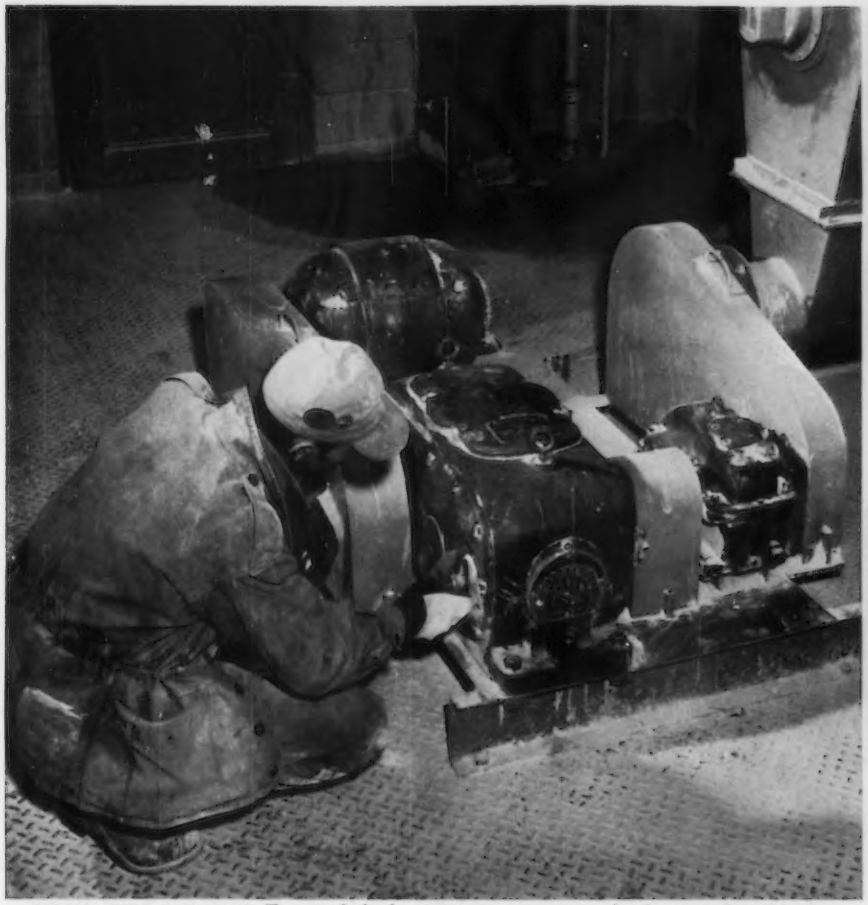

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